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THE SCHOOL NURSE

**HER DUTIES AND
RESPONSIBILITIES**

C. LOUIS LEIPOLDT, F.R.C.S.E.

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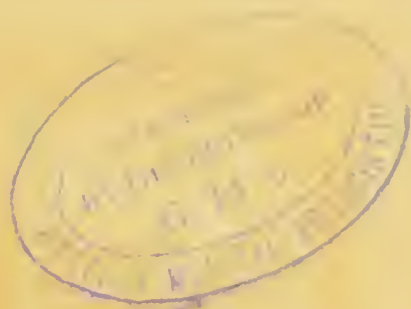
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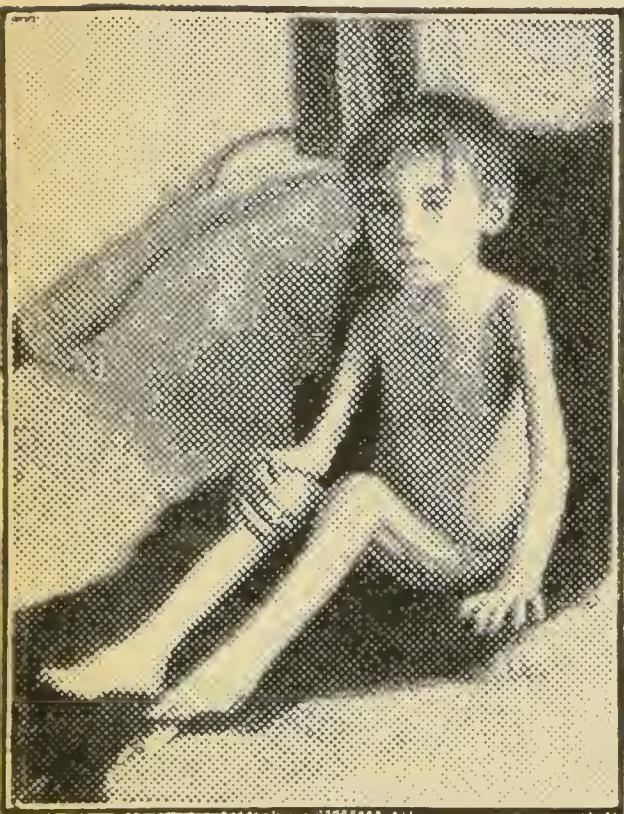
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THE SCHOOL NURSE
HER DUTIES AND RESPONSIBILITIES



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THE SCHOOL NURSE

HER DUTIES AND RESPONSIBILITIES

BY

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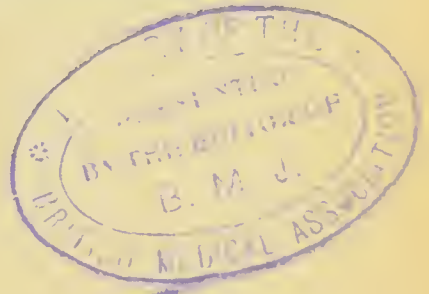
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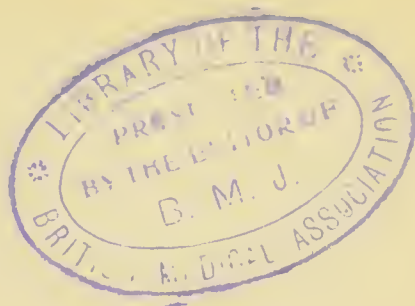
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TO
JAMES KERR, M.A., M.D., D.P.H.

MEDICAL OFFICER (EDUCATION) LONDON COUNTY COUNCIL.

IN GRATEFUL RECOGNITION OF
HIS KINDNESS AND
IN RESPECTFUL ADMIRATION OF HIS PIONEERING WORK
ON BEHALF OF MEDICAL INSPECTION
OF SCHOOL CHILDREN



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PREFACE

THIS little book has been compiled in the hope that it may prove of service to many nurses who have decided to take up school work. The need for a small manual dealing with the school nurse's duties and work has been increasingly felt during the last few years, and, though the author cannot flatter himself that this work will supply that requirement, he yet hopes that it will be of use to those who have realized the importance and magnitude of school nursing and the medical inspection of school children. Within the limits allowed it has been impossible to make the book complete, and a number of photographs and illustrations have had to be omitted, for their insertion would have unduly increased the price of the book without commensurately adding to its usefulness. The author will be glad to hear of any suggestion for improving or adding to the usefulness of the book, and trusts that school nurses will point out to him any defects or errors for correction in future editions.

My thanks are due, in the first place, to my late chief, Dr. James Kerr, whose valuable advice and counsel have been of the greatest assistance to me ; to Dr. C. E. Price,

of Orpington, who has kindly read the proof-sheets ; and to Dr. Lytton Maitland, of the London Fever Hospital, who has finally revised them, I also wish to express my great indebtedness. Last, but not least, I owe a debt of gratitude to my late assistants, Miss Barugh, Miss Russell, and Miss Clark, whose help during several sessions of inspection have been of the utmost value to me.

C. L. L.

LONDON,

February, 1912.

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THE SCHOOL NURSE

HER DUTIES AND RESPONSIBILITIES

CHAPTER I

THE SCHOOL NURSE

THE history of the school nurse is the history of the medical inspection of school children. Without going as far back as the Middle Ages, when more than one medical and educational authority had the wisdom, unshared of the age, to declare that a healthy mind was in the majority of cases dependent on a healthy body, it is worth while pointing out that such inspection is not a twentieth-century novelty. In the early part of the nineteenth century, the question of the medical inspection of school children was receiving the serious attention of many thoughtful educationists, who saw that it was foolish and unreasonable to expect from physically and mentally defective children the same results in education and training which could be demanded from healthy children. With the advent of compulsory elementary education, this feeling became accentuated. There was already in existence, in France, a well-defined scheme for the medical inspection of schools, which had been laid before the National Convention in 1783 by the Abbé Sieyès, and which provided for the appointment of special school medical officers, who were required to visit all the schools in their district and report on the condition of the children. In the early part of the nineteenth century the military academies of France and Germany had special school doctors attached to them, but it was not until the end of the third

decade that the scheme was extended and generally approved of. This was first done in France, where in 1832 it was officially recommended that every elementary boys' school should secure the services of the local practitioner, who was expected to call at the school on two days a week and examine such children as required medical treatment. Other countries on the Continent speedily imitated this example, and improved upon it. In 1833 there were regular school doctors attached to most of the public schools; in Austria, Germany, Switzerland, and Holland, doctors were specially nominated to attend scholars in the higher schools. As compulsory education became the rule, more attention was paid to medical inspection, and the duties of the school doctors and the attendant nurses were more clearly defined. The compulsory inspection of all scholars was not, however, looked upon as essential until the latter part of the last century, when most countries fell into line with France, and provided for general routine inspection of all elementary schools.

In England the development of the system has been slow, and has been carried out in spite of a great deal of opposition. There yet lingers in many minds an impression that compulsory medical inspection is an infringement of the liberty of the subject, and that the State has nothing to do with the material welfare of the child who attends school. Nothing can be more foolish than this idea. Where compulsory education rules, and where many of the children who attend the schools are exceedingly poor and badly fed, clothed, and looked after, it is imperatively necessary that some provision should be made by the authorities for securing adequate medical inspection, in order that the pupils may not be forced to attend classes when their health is such that they cannot benefit by the teaching and training. This is even more necessary in cases where the attendance of physically defective children at school is a menace and danger to the other children. In the larger and higher

public schools, and in private establishments, there is, perhaps, less need for such inspection, though even here it is well that the State should see to it that the medical inspection is thoroughly carried out. But in elementary schools, where the children are for the most part of poor parents who cannot afford the services of a private medical attendant, such inspection is essential.

The passing of the Education Act, which forty years ago made education compulsory in this country, drew general attention to the main points on which for a long time previously stress had been laid by those who were concerned with the health of the school-going population. Children with defective eyesight, contagious skin disease, and physical defects which made it manifestly impossible for them to compete in class with normal pupils, were forced to attend school, and such compulsory attendance was not in the best interests of the child, unless these defects from which it suffered were first treated and remedied. In a manner such treatment was done, in a sort of sporadic, unsystematic way. As public opinion became more enlightened it was felt that some attempt should be made to deal with these defective children in a more thorough manner, and with that object schemes of medical inspection were formulated.

The first essential of such inspection is of course to find out whether or not the children are defective, and to sort out those who are physically fit and able to do ordinary school work from those who are physically unfit and unable to do their share of the ordinary work. Medical inspection is, therefore, as now recognized, quite separate and distinct from medical treatment. It is becoming increasingly recognized, however, that the two must ultimately go hand-in-hand, and that it is a bad system which merely notes defects without attempting to treat them.

In this country the pioneering work in the medical inspection of elementary schools was done by the London

School Board, which in 1891 appointed a special school medical officer. Two years later, Bradford followed suit and appointed Dr. James Kerr, who is now the head of the London County School Medical Service. The work done by Dr. Kerr at Bradford was of the greatest importance, and was an eye-opener to those who still thought that medical inspection was merely a fad. In 1902 an amended Education Act was passed, which led to the appointment of other medical inspectors of schools, but it remained for the Act of 1907 to lay down the general scheme for a complete system of medical inspection.

The Act of 1907, styled "The Medical Inspection of Children in Public Elementary Schools Act," came into force on the first day of January, 1908, and gave to the local educational authorities power to provide for children attending public elementary schools, vacation schools, play centres, out-door and special classes, and further laid on them the duty to provide for the medical inspection of such children immediately before, or at the time of, or as soon as possible after, their admission to school, and to make other arrangements, sanctioned by the Board of Education, for attending to the health and physical condition of such children. It further allowed the educational authorities to make use of voluntary agencies for the treatment of such children as may be found defective. The Board of Education appointed a special officer, Dr. (now Sir) George Newman, to organize the scheme of general medical inspection throughout the country, and issued a memorandum which fully explained the contemplated system, and the manner in which the inspection was to be carried out.

This special memorandum points out that the new legislation aims "not merely at a physical or anthropometric survey, or at a record of defects disclosed by medical inspection, but at the physical improvement, and, as a natural corollary, at the mental and moral

improvement, of coming generations. The broad requirements of a healthy life are comparatively few and elementary, but they are essential and should not be regarded as applicable only to the case of the rich. . . . The justification for the system of medical inspection is to be measured in the decrease of sickness and incapacity among children, and in the ultimate decrease of inefficiency and poverty in after-life arising from physical disabilities."

With the rise of the system of medical inspection, the school nurse has become a necessity. Her duties are as yet unsystematized, but it is now recognized that her help is of the greatest value and importance in any arrangement which entails medical inspection and supervision. Abroad she has been firmly established for some years, and it is interesting, as a preliminary, to consider what her duties are there. The rules and regulations drawn up for the New York school nurses are clear and definite ; those in Germany and France are equally well ordered, while here in England the regulations laid down by the various educational authorities differ in some ways, though they are all alike so far as the essentials are concerned.

The American nurse is given charge of a group of schools, and she must visit every school at least once a day. She is given a special room, where she sees those children who are reported to her by the teacher, and inspects them with a view of subsequently reporting any obvious defects to the visiting school doctor. The latter has also a special room, where he attends at nine o'clock in the morning, and it is the nurse's duty to assist him in his inspection of those children whom she has referred to him. She writes up the cards according to the doctor's directions, and gives advice with regard to treatment according to printed instructions which have been drawn up by the school doctors. She must see all the children under her charge at least once a week, and inspect them

methodically, though superficially. She must report on those who, owing to illness or other cause, are absent from school, and must do a certain number of home visits. The routine inspection is limited to noting the condition of the eyes and teeth, the child's cleanliness, and state of its dress, and whether it is infected by vermin or disease. Dr. Steven, in his recent book, "The Medical Supervision of Schools," states that the nursing staff at New York consists of 141 full-time nurses, who receive each a salary of 75 dollars (£15) a month, and who must devote all their time to the work. They are under control of a supervising nurse, who has entire charge of the nursing staff. Each nurse wears a special white apron when on duty as the badge of her authority, but has no regular uniform.

"The nurse," writes Dr. Steven, "obtains each day from the medical inspector the physical record of every case examined on that day. She fills out for each case a notice to the parents on an official blank, asking them to report to the nurse at school. This notice is first forwarded to the principal for signature, who sees that it is received by the parents, whom the nurse instructs at the school regarding the necessity for treatment. In the absence of the inspector, the nurse may treat any case requiring immediate attention, referring all cases to the parents for medical treatment. Any suspected case of contagious disease should be referred to the principal for exclusion, and reported to the medical inspector. . . . The nurse is not allowed to exclude a child on her own initiative without the consent of the principal. . . . She makes a routine inspection of the children in the class-rooms; the eyelids, skin, throat, and hair are examined. She must not touch the child. The latter pulls down the eyelids, opens the mouth, etc. . . . If after three days the parents of children in whom physical defects have been diagnosed do not visit the nurse at the school, she must call on the parents at home, explain the conditions, and urge the necessity for treat-

ment. She must make herself familiar with all local facilities for obtaining treatment, and give general instructions as to food, ventilation, cleanliness, and hygiene. . . . Revisits must be made in each instance, until evidence of treatment is shown or parents refuse treatment. No case can be terminated on account of inability to obtain treatment until it has been referred to the medical inspector. If the parent is unable to take the child to a dispensary, the nurse may do so, but must previously obtain in writing a request to that effect. . . . No visit shall be made by the nurse to contagious cases. A report of the treatment is made on the record, and evidence that a child is under medical care is sufficient for the nurse to terminate her attendance. The nurse must report regularly to the supervising nurse, and a daily report of work performed is mailed to the chief of the division." In addition, lately, the nurses have to see that every child born in their district is attended to, and that the mother receives proper instructions with regard to its care.

In Germany school nurses are not so conspicuous in the scheme of medical examination as they are in England and America. Where they exist, their duties are generally similar to those of their colleagues in this country. The nurse must follow up cases which have been diagnosed as defective, she must urge on the parents the desirability of obtaining treatment, and report on each case to the school doctor. She acts as an almoner in some instances, and has to report on the home conditions of the child, and act as an adviser to the family with reference to hygiene and cleanliness, proper diet, and the general care of the child, but has no routine school inspection to do.

The duties of the school nurse in England are usefully summarized in the instructions given to the nurses who work in the London district under the London County Council, and these may be taken as typical of what is demanded of the nurse in general :

“The duties chiefly consist in assisting at the medical examination of school children ; making systematic visits under the direction of the Council’s Medical Officer to the schools allotted to them ; paying due regard in all such work to the necessity of using as much tact as possible with teachers, parents, or children, and causing as little disturbance of school routine as possible ; examining children for all forms of obvious uncleanliness and disease ; advising the teachers in regard to the exclusion from school of doubtful cases ; applying the schemes for cleansing the heads, bodies, and clothing of the children ; and visiting the children’s homes and advising the parents in regard to treatment. The nurses should visit each school according to a rota which is prepared, giving the dates on which the schools should be visited. The date when each department should be visited is also given in order to insure that every child in the school shall be individually and systematically examined. Head teachers should be given three days’ notice on the postcard provided for the purpose of a proposed visit in order that arrangements may be made for the attendance of children about whom they desire to have advice. At these examinations each child in the department mentioned on the rota shall be individually examined and the following procedure adopted : (1) Separate the hair with a comb (disinfecting the comb after the examination of each child). (2) Loosen the clothing round the neck of all cases of suspected verminous bodies and clothing. (3) Note any abnormal condition as regards throat, suppurating ears and fingers, obvious neglect, etc. Upon the completion of the examination of all the children in one department, the nurse should visit the other departments of the school (including schools for mentally defective and deaf children) in order to : (1) Examine the children found to be unsatisfactory at previous visits. (2) Examine the children about whom the head teachers require advice. (3) Interview parents, if necessary. In order to complete all the work enumerated above, it may happen that some of the schools will

require the nurse for the whole day. The visits paid to each department must be recorded on the weekly report form, together with the number of children seen.

“ At the nurse’s visits she examines children who are under observation, and children who have been re-admitted after exclusion for ringworm ; deals with parents who attend to seek advice or to complain of action taken ; applies the cleansing scheme, where necessary ; assists the head teachers generally by suggesting temporary procedure in cases of suspected outbreak of infectious or contagious disease, affections of the skin, ophthalmia, offensive discharge, etc., and by advising in regard to the many small and doubtful points concerning school hygiene that may be submitted to her. The rota must not be departed from except in the event of the nurses being required to assist the school doctors, in which cases the rota visits should be made on the next free session in the same week as the visits fall due.

“ This procedure should also be adopted in the case of closure for school sports, treatés, etc. The schools for blind and physically defective children and residential schools should not be visited, except on receipt of special instructions from the Medical Officer (Education), as in the former the children are under the supervision of the Assistant Superintendent of Schools for the Blind, and at each school for the physically defective there is a nurse whose duties are, *inter alia*, to attend to the personal cleanliness of the children. Nurses must not write or send verbal messages to parents or guardians of children in attendance at school. All communications should be sent through the head teachers of the schools.

“ Care should also be exercised to avoid discussing the condition of a child, or of its home, in the presence of the child concerned or of other children. Children found to be suffering from ringworm of the head must be excluded from the school by the head teacher, but children suffering from ringworm on other parts of the body need not be excluded, provided that treatment is being carried out. In a case of doubt or difficulty (but

only in such cases) stumps, not long hairs, must be sent to the Medical Officer (Education) for microscopical examination. Enquiries must be made in respect of any child who, after an absence from school on account of ringworm, has been re-admitted. Head teachers should notify the nurse of the return to school of children who have been suffering from the disease. If a child has been re-admitted on a medical certificate, and the nurse is of opinion that the disease is not cured, stumps should be taken and sent to the Medical Officer (Education), but the child should be allowed to remain at school until the stumps forwarded have been microscopically examined. Head teachers should be advised to exclude from attendance at school children suffering from offensive discharge of the ears. Particulars in regard to such cases must be reported to the Medical Officer (Education). Children found in circumstances which apparently render it desirable that they should be dealt with under the Children Act, 1908, with a view to action being taken for their safety and protection, and for the punishment of the parents or guardians, should be referred by the respective Divisional Superintendents to the local branch of the National Society for the Prevention of Cruelty to Children. Nurses should not communicate directly with the National Society, but must report such cases to the Medical Officer (Education).

“Nurses are required to report, if necessary, upon the homes, with a view to the premises being dealt with under the London County Council (General Powers) Act, 1904, Part IV., and also in regard to the home conditions of children (Children Act, 1908). The Board of Education have abolished the grant in respect to children suffering from, or excluded on account of, infectious diseases in their homes, and there is a growing tendency on the part of many teachers to press these children into school whilst still in an infectious state. Such cases should be reported to the Medical Officer (Education), and the teacher should be advised as to the grave risk of retaining these children.”

CHAPTER II

THE SCHOOL NURSE (*continued*)

FROM the enumeration of the duties already given, it will be seen that the educational authorities require a variety of attainments which should go far to make the school nurse an "Admirable Crichton" in the best sense of the term. Those who intend entering the service may perhaps be aghast at first sight of this extensive catalogue of requirements. But it is well to remember that nursing itself, no matter what branch of it is taken up, is an exacting profession, and that it is not given to every woman to possess the necessary qualities that fit her for the task of nursing the sick. There are at present no special training schools which devote particular attention to the education of the school nurse, and, in this country at least, she is, after all, merely a special edition of the ordinary sick-nurse. But just the fact that her work is of a special kind makes it important that those who intend to devote themselves to school nursing should carefully consider before they give up their ordinary work whether they possess the requisite qualities which are indispensable in the ideal school nurse.

In the first place come professional requirements. A school nurse should be an efficiently trained hospital nurse, who has successfully completed her three years' course. If she has spent an extra year at a children's hospital, so much the better; if not, she should devote some period of her time to attending at the out-patient

department of such a hospital, and learn the main points about the diseases of children. "The out-patients' department is a better place than the wards," remarks Miss McCall Knipe in her interesting little work, "Duties of the School Nurse," "to learn how to treat small ailments such as the nurse will have to deal with in the schools. Among the out-patients, she will find many suffering from sore heads caused by neglect and vermin. She will learn a few simple methods of preventing infection from ring-worm or scabies, which will be valuable to her as a school nurse. Among the habitués of the out-patient department she will come to recognize rickets, spinal curvature, and many other diseases of badly nourished or neglected childhood which are never admitted to a hospital ward. It is more necessary for a school nurse to know how to treat these diseases than the more serious ones." The foundation of her professional education must be solidly laid. She must possess a good grounding in the essentials of anatomy and physiology, hygiene, sanitation, and general nursing. All this she will have learnt during her three years' course, and if she has been fortunate enough to secure special work in a fever hospital, in an eye-ward, in the throat, nose, and ear departments, in the orthopædic department, in massage and Swedish movements, she will be all the better for such additions to her stock of knowledge. Indeed, it may be premised that all these special branches should be studied by anyone who wishes to become an efficient and thorough school nurse, and it is unnecessary to lay further stress on the importance of a good training and a thorough elementary education in the essentials of nursing work. Although at present the duties which devolve upon her are more or less in the nature of routine work, there is no doubt that when the system of medical supervision of schools, as distinct from mere medical inspection of school-children, is better organized, the school nurse will play a far larger part in the scheme than she does at present. Even now she has many opportunities of spreading the

light among those with whom she comes into touch, and it is important, therefore, that she should be able clearly to recognize the light, and to give her knowledge to others in a practical and instructive manner. Especially in the girls' department and in the infant classes she may do much good work if she is keen upon her business and interested in the welfare of the children. She may, for instance, with the consent of the teachers, give the children simple talks, telling them the elementary facts about health and hygiene. If she has had some experience in demonstrating to probationers, and has kept notes of her own old lectures, she will find that these outside interests—which are really not so far outside as they may seem to be—will tend to keep her fresh, and will give her both pleasure and the satisfaction of knowing that she is doing work which is really national in its importance.

The possession of a Royal Sanitary Institute Certificate is of great advantage to the intending nurse. This institute holds special examinations for school nurses and health visitors and in school hygiene. Full particulars of the Syllabus and requirements of these tests may be obtained on application to the Secretary of the Institute, Victoria Street, S.W. Every school nurse should endeavour to pass one or both these examinations. The practical nursing work and the knowledge of hygiene required are not great, and the examinations, although very fair tests of knowledge and ability, are not very severe. Some special preparation or coaching is necessary in certain subjects, but beyond these the average nurse, who has been properly trained and has had some experience of working in a children's ward, ought to have no difficulty in obtaining the certificates.

Necessarily, a great deal of her work will lie not so much in the schools themselves as in the homes of the children. She must, therefore, possess some knowledge of social work, and it is a good plan, if the nurse has not

had experience of district visiting, to devote some time to this branch of work before she starts her regular duties. Work on the "maternity district" is excellent preparation for this kind of social work, but perhaps the best practice is to be obtained by accompanying the hospital almoner or a health visitor. Mere hospital training cannot give her the experience and the knowledge necessary to deal with the children in their home environment. On the other hand, a woman who is a good health visitor and an excellent almoner may be quite unsuited for the position of a school nurse if she lack the training which every nurse should have obtained. The ideal is a combination of the two—the experience derived from home visiting and a knowledge of the social conditions of the children attending schools, with the routine training obtained during the regular three years' course.

It is needless to insist that the nurse should keep up her interest in the professional side of her work. She should keep in touch with the developments in the nursing world and with the advances in science so far as they touch her special branch. She should subscribe to a good nursing paper, and try to obtain some insight into the current state of affairs with regard to school hygiene by occasionally perusing the professional journals. The School Nurses' Association, of which she should become a member, will afford her valuable assistance; the school doctor, if she displays an interest in the matter and does not scruple to ask his help, will gladly assist her in her reading. The organ of the School Medical Officers' Association (*School Hygiene*) is an excellent little monthly, which gives a great deal of interesting and helpful information on points which directly affect the school nurse; and if the nurse does not subscribe to this paper, she should see that she gets the loan of it regularly, and reads those articles which more especially touch her province.

Nor need we lay any stress on the personal qualities

requisite in the ideal nurse. Without tact, patience, sympathy, courtesy, and kindness, she will achieve little, and these are qualities which, if necessary in the ordinary nurse, are doubly necessary, in the nurse who works in the schools, and whose routine duties make it imperative that she should employ them all every day of her working life. Her patience will often be severely tried ; both Care Committees and parents, however well intentioned, are often exasperating enough, while there have been, and doubtless in the future will again be, occasions when her courage and tact are tested to the extreme by the wilful obstinacy and prejudiced opposition of the community among which she labours. The many difficulties which beset her path can only be removed by the exercise of unlimited tact and cheerfulness. It is not the slightest good to be curt and peremptory with a parent who does not realize the importance of the work that is being done on behalf of himself and his children ; it is only by patient argument and tactful example and precept that the nurse can hope to undermine this opposition and convert it into co-operation. When she has achieved that, however, and achieved it through tactful means, she may rest assured that she has won valuable allies who will help her in her future work to an extent which it is impossible to overestimate. One indifferent or actively inimical parent in a slum street converted into a friend is worth more than a dozen lukewarm ones who do not display sufficient interest in their children's welfare to risk a passage of words with nurse.

It is always well to remember that the major portion of her work will be done under the eyes of the children, and that example is the most potent means of inculcating good manners and good habits. It is a truism to say that children are impressionable, but that is a fact which the school nurse should never lose sight of. She should, therefore, be doubly careful in her personal cleanliness, her manner, her speech, and her general behaviour, and should do her utmost to impress upon

those under her care the fact that she is a lady whose example is worth copying. Gentleness and tact are the first requisites, and it is no exaggeration to say that she should strive to emulate the sunny qualities of the young gentleman who at one time figured so prominently on the hoardings in the advertisements of a certain patent food. While these moral qualities are indispensable, there are others which are no less needful. Cleanliness is all-important; slovenliness and inattention to the little details of dress and deportment are doubly reprehensible in the school nurse, since they are sure to be observed by the children, and, if not actually commented upon, to be copied, or at least to be made a strong factor in undermining the good that the nurse tries to do by precept and by example in other directions.

Her relations with the officials of the school should be characterized by the same unfailing courtesy which she should show to the parents of the children. When dealing with the latter, whether in the presence of the children themselves or otherwise, she should never lose sight of the fact that they are the parents, and that it is imperatively necessary that their authority should be upheld and not opposed in any way. Here there is need for the exercise of the greatest care and discrimination and tact. A chance word, expressed in the heat of the moment, may do a great deal of mischief, and parents, especially of the poorer classes, are indisposed to overlook such unfortunate chance remarks. There is a strong tendency on the part of many parents to resent the school nurse's interference, which they regard as unwarrantable. This usually arises through ignorance of the real scope of the nurse's duties, and a little patient explanation will generally clear the atmosphere, and conduce to a harmonious co-operation between nurse and parent.

Similarly the nurse should never forget that in the school the teacher stands in the place of the parent. She should uphold the teacher's authority, and be

careful to show the scholars that she respects it. Usually the nurse will find the teacher only too willing to assist her by every means in her power, but she should never lose sight of the fact that teachers as a class are exceedingly hard-worked individuals, and that any extra work put upon them means an additional sacrifice of time and energy on their part. Personal appeals to them for help should be avoided wherever possible, but at the same time the responsible teachers should be informed of everything that is done in their department by the nurse. Similarly, with the school doctor, the nurse should remember that on him devolves the responsibility of dealing with conditions that demand medical interference; it is her duty to report to him all cases that in her opinion need attention, and not to act on her own initiative in excluding a child without his sanction or knowledge. Many school doctors have their own little fads and crochets, but the nurse's experience in dealing with the resident and visiting staff during her hospital time will enable her to steer smoothly through the difficulties that may sometimes be met with, and to avoid all friction. Too much stress cannot be laid on these points, since, by proper attention to them, the necessary cordiality and co-operation which should prevail between the nurse and the other officials of the school will be safeguarded and preserved.

Obviously the duties of the school nurse make it imperative that she should be of relatively strong physique and perfectly healthy. The long tramps that she will have to do in the course of her visiting may tax her energy severely, while the routine work, both in and outside the school, is no less fatiguing. It is true that she gets her Sundays free, with usually the chance of a whole week-end off, while the hours of actual work may not be excessive, and there is, above all, no night-work. She should take care, therefore, to preserve her health, and should not neglect the most trivial abnormality. Proper attention should be paid to the footgear

of the nurse as well as of the school child. It is amazing what a change in comfort and general well-being can be secured by paying due regard to this simple matter of boots. Roomy boots, with, when there is a tendency to flat-foot, a properly modelled celluloid inset which can be slipped into any pair of boots or shoes, will husband her energy considerably ; and it is just as well that she should take care that the rest of her clothing is fashioned on the same model principles, which should be her ideal with regard to the children's dress. She should take care that she obtains proper nourishment, starting the day's work neither on an overloaded nor on an empty stomach, and securing her meals at regular hours. In this respect she is in a much better position to frame a time-table and stick to it than is the average sick-nurse. At many schools afternoon tea is provided by the teachers, and the nurse can generally join in this, either as a guest, or, what is preferable, by paying her share of the mess. Her week-ends and holidays should be spent in an environment as different as possible from that in which her duties lie, and in everything that concerns her own health and person she should never lose sight of the simple rules of hygiene that it is her duty to inculcate into the children.

With the exception of the boots, to which we have already referred, little need be said about dress or equipment. The nurse's bag will be furnished more or less according to individual taste and fancy. It should contain some simple materials for dressing, a roll of adhesive plaster (Leukoplast or Durana is admirable, clean, and always ready for use), a few ordinary bandages, and a small packet of gauze and lint. A couple of thermometers—one for use, and the other for emergencies in case of breakage—should be carried, along with a small bottle of some strong disinfectant—Lysol in concentrated solution does excellently—with which disinfecting solutions may be prepared. A little enamelled dish, and an ordinary dressing-case, with forceps,

scissors, needles, and a probe, are very useful adjuncts. It is better to carry all instruments in a bag than in a pendant chatelaine, since the nurse tramps the streets to and from the schools, and there is not always a chance to get rid of the dust. A towel, soap, a nail-brush—the two last carried in a small aluminium box, which is lighter, cheaper, and in the long run more satisfactory than a nickel box—complete the outfit so far as essentials are concerned. The various addenda which the nurse is provided with, and which vary in different centres—such as forms, tubes, and envelopes for the collection of specimens of hair, etc., visiting-book, and so on—will, of course, have to be provided for. It is a good thing to carry in the bag a small, tightly-corked bottle of a 10 per cent. solution of tincture of iodine ; this is the best disinfectant to use on small cuts and abrasions, and is an exceedingly useful solution to have at hand in case of emergencies ; the only thing to be attended to is that the solution should be freshly prepared at least once every month. The uniform which the nurse wears is usually officially prescribed ; a serviceable umbrella and a strong, well-ventilated mackintosh for use in rainy weather are almost indispensable additions to the outfit.

The future that the school nurse has to look forward to is undoubtedly brighter in some ways than that which faces the general nurse. Her work lies equally among healthy as among sick children, and is much more of a supervisory nature than is the case with that of the average nurse. As a matter of fact, she has very little real nursing, in the ordinarily accepted sense of the word, to do. She gets a fixed salary, sometimes with the prospect of a regular pension at the end of a certain number of years of work. Where that is not the case, she should take care to provide for her old age by joining a pension fund. When the present Insurance Bill becomes law, school nurses will probably be compulsorily insured, part of their premiums being paid by themselves, part by their employers, and part by the State.

CHAPTER III

MEDICAL INSPECTION OF SCHOOLS

ONE of the most important duties of the school nurse is to assist the school doctor at the ordinary routine examination or medical inspection of the children. Various methods of conducting that examination are followed in the different counties, and most doctors have their own little fads, which the nurse can only learn after working with them. In general, however, the routine is very simple, and the following outline will be found to apply to the average course followed in the majority of cases.

The inspection takes place during school hours, either in the morning or in the afternoon. In the London district, so far as the County schools are concerned, an intimation is sent from the head office to the head master or the head mistress, in whichever department the inspection is to commence, to the effect that on such and such a date, at such and such an hour, the school doctor will attend to examine the children. Friday afternoon is not chosen, owing to the fact that at the end of the week the teachers have a large amount of clerical work to do, and cannot, therefore, give the necessary attention which may be asked of them to the children who are examined, while on Saturday no inspections take place. On receiving this intimation from headquarters, the teacher in charge of the department first visited notifies the parents of the children selected for examination of the fact that medical inspection is to take place, and

invites them to attend. The name, date of birth, age, address, class number, and the date of inspection are written on the card of every child examined. This is done by the teacher, and the cards (in the case of the London County Council schools, blue for the boys, and white for the girls) are arranged ready for the doctor to deal with them when he comes. An ordinary school session—that is, from nine o'clock till twelve o'clock in the morning, and from two till four-thirty in the afternoon—is devoted to the inspection. The number of children examined varies considerably. As an average, twelve per hour may be taken as a minimum. Where the children examined are of unusually low physique and present many defects, the examination will, of course, take longer, and the total number examined during a session will be less. It is undesirable, however, to work at a more rapid rate than fifteen children per hour; if more are seen, the examination is apt to be superficial, and there is a tendency to skimp cases, instead of going over them systematically. In the infant department, in cases where the children are not examined individually, but merely inspected, the procedure is much quicker, and as many as sixty or more children may be dealt with in one session.

The nurse should arrive at the school before the doctor, and should see that everything is in readiness for the inspection. It is annoying to find, when the child is stripped and ready for examination, that something has been forgotten, that the cards are not ready, or that the test types for vision have been mislaid. The nurse should therefore make a point of checking the articles required; she should keep a mental list of what the doctor requires, and what ought to be at hand in every school. The inspection may take place in a class or in a special room, or in the corner of a hall screened off by a curtain. In every case, no matter where it is held, arrangements should be made to enable each child to be examined in strict privacy.

At the examination only the doctor, the nurse, and the parent of the child should be present. It is well to bear in mind that no child may be examined without the consent of the parent or guardian ; if such examination is done against the parent's wish, it constitutes an assault on the child, and is illegal. It is similarly illegal if it is done without notifying the parent. If the parent has been notified, but fails to be present at the inspection, and does not definitely state that he or she refuses consent to the examination, such consent is taken for granted, and the parent has no legal claim against the nurse or doctor. But it is well to bear in mind that in cases where consent is distinctly refused, the nurse who prepares a child for examination commits a technical assault on the child for which she may be held responsible at law. It is true, no court of law is likely to punish her if it can be shown that she acted on the doctor's instructions ; but it is unwise to risk any subsequent trouble that may arise through neglecting the simple precaution of inquiring in every case if the parent has been notified.

The nurse will find all her tact and good temper required in dealing with parents and members of Care Committees. The latter, with the best intentions in the world, often cause a great deal of worry by persisting in their wish to attend the actual examination, and by cross-examining the nurse while it goes on. No outsider, whether a member of a Care Committee or not, has a right to be present at the examination ; on the rare occasions when the doctor brings a medical friend with him, such attendance is only a matter of courtesy on the part of the authorities, and special leave has to be obtained before the stranger, even if a medical man, and a school medical inspector from another district, is allowed to be present at the examination. The presence of members of the Care Committee in the room where the inspection takes place is often very advantageous to the doctor and nurse. It gives the latter the opportunity of referring to them at once such cases of

physical or other defect in dealing with which the Care Committee can be of great assistance. But the members of the Care Committees should not be in that part of the room which is screened off for purposes of the actual inspection. A clear statement by the doctor of the rules under which the examination is conducted is usually quite sufficient to show these ladies and gentlemen that they cannot attend the inspection. They are, in general, always willing and eager to co-operate with doctor and nurse, and, as has already been stated, their presence in the room or in the building is of the greatest service on many occasions.

With the parents the case is somewhat different. Many parents object to their children being examined ; they see no necessity for a procedure which appears to them to be uncalled for, and an inquisitive interference with their habits. The nurse who takes an interest in the study of human character will find plenty of material for such study in observing the attitudes adopted by parents at examinations. There are, for instance, fussy parents who desire to be reassured on various points—that their children are not suffering from consumption or cancer, since a far-off relative died of one or other of these diseases ; or who anxiously ask for information regarding the best hospitals and the most up-to-date lines of treatment. Then there are sulky parents, who attend the inspection under protest, as it were, grumbling perpetually at the time and the money they allege that they are losing through compliance with the invitation sent to them. There are careless parents, again, who take no interest whatever in their children's condition, who regard any suggestion of treatment for a condition discovered on examination as so much impertinence on the part of the doctor. And, finally, there is the aggressively antagonistic parent who attends, but only to give doctor and nurse and teacher a piece of her mind, and to protest against the cruelty of stripping the " poor little children " and letting them " catch their death of cold."

With a little tact and that saving sense of humour which every school nurse should possess, it is comparatively easy to deal with these types of parents. Each needs a special study and different treatment, but the nurse will soon learn to differentiate between them and to treat each in the right fashion. The fussy parent should be soothed and made to understand that nothing which is material to the child's welfare will be overlooked. The nurse can do much good in such a case by talking cheerfully and kindly, and by pointing out that even if there is a history of consumption or cancer in the family, it does not by any means follow that the child will suffer from either of these diseases. With regard to general lines of treatment and special recommendations to hospital, the nurse has nothing to do. She must not take upon herself to advise any special line of treatment in cases where such is required, unless she is instructed to do so by the doctor. It is for the latter to tell the parents, when they are present, and in every case of difficulty it is the doctor who should be appealed to. At the same time, the nurse may do a great deal to save the doctor's time and to prevent unnecessary delay by a preliminary talk with refractory or obstinate parents. The parent who refuses to allow an examination to be made can usually be persuaded to permit such examination. With a little tact, and a discreet explanation of the benefits which are likely to accrue through systematic inspection, such a parent will generally come to see that it is in his or her own interest to consent to the inspection; and once that has been won, the parents usually show themselves willing, and even eager, to assist by supplying all the information in their power.

The parents should wait outside the private room, or beyond the screened-off part where the actual examination takes place. To save them the long waiting that sometimes ensues when many children are examined, it is a good plan to invite different batches at different times. Thus, the first batch of five children

at a morning inspection may be invited to attend at nine o'clock, the second at nine-thirty, the third at ten, and so on. In that way time is saved, and it is always well to remember that working women cannot afford to lose a half-day's wages or work, even for the sake of attending the medical examination of their children. The nurse should deal with each child methodically and in turn. In the case of all children, whether boys or girls, the boots or shoes are taken off, and the child is weighed and measured. The measurement is taken with a centimetre scale fixed against the wall ; the weight with a scale which registers in kilogrammes and decimals of a kilogramme. The child should not be permitted to jump on the scale or weighing-machine, but should quietly step on to it, and the nurse should from time to time test the correctness of the weighing by weighing a child whose weight is accurately known, or by weighing herself, if she knows her correct weight. In most cases the doctor takes one or two measurements and weights, to satisfy himself of the correctness of the scale and machine.

The weighing and measuring being completed the nurse should see that the children are stripped to the waist. This is often a matter that needs some care, for the younger children cannot properly undress themselves, and sometimes their clothes are fixed in a weird and wonderful fashion. The boys should have their braces or belts tied round the trousers above the hips ; this leaves their hands free, and enables them to be examined properly. In the case of girls the clothes must be fixed in some other manner, usually by pins, to prevent them dropping down. When the child is placed before the examiner, it should be completely stripped as far as the waist ; and it is better also to have its feet bare, as that allows the doctor to judge of the condition of the feet, whether normal or flat. After a little practice, it is easy enough to conduct these preliminaries quickly, so that one child is getting ready

while the other is being examined. In some cases the teacher may instruct a head monitor to assist the nurse with the younger children, and such help is very useful. The monitor should not, however, take the measurements; these should invariably be registered by the nurse.

The preliminary testing of the vision is usually done by the doctor. Many inspectors, however, to save time, desire the nurse to test the child's vision, and only test it themselves if the nurse reports that the child does not read the lowest line of type. In that case the nurse should see that the test types are placed in a good light, and that the children stand at the proper distance. The vision should be tested with both eyes, and then with each eye separately, and any abnormality should be reported. The nurse's assistance at the actual inspection is not usually required, so she can continue to prepare the next child while the doctor examines one. She should never, however, leave the doctor alone unless a teacher is present. This is necessary for reasons which are obvious. Serious trouble may arise through neglecting this precaution; complaints may be made that the children are badly treated by the nurse or doctor, and assertions which would be easy enough to refute when it is possible to prove that the examination was always conducted in the presence of the nurse or at least one other person.

Some medical inspectors require the nurse to fill in the details with regard to previous history, diseases from which the child has suffered, and family history, spaces for which are provided on the cards. Others, again, ask the nurse to fill in the details with reference to cleanliness, nutrition, and state of clothing; and it is perhaps better that these should be noted by someone who has a closer acquaintance with the actual condition of the children than the doctor possesses, when he only occasionally visits the school for the purposes of medical inspection. The nurse, in such a case, should endeavour

to attain to some uniformity ; she should have a definite conception of what she means by " Good," " Excellent," " Indifferent," or " Bad," or the figures that represent these grades. Once having adopted a definite standard, she should not depart from that, but at the same time it must be a standard that admits of certain allowances being made for different degrees of social standing and different neighbourhoods. For instance, it would be obviously unfair to gauge the excellence or otherwise of a child's clothing in a slum school by the same standard that is used in a class in a well-to-do neighbourhood. All these standards should be to a certain extent relative, and the nurse, when attempting a classification on their basis, should bear in mind, and make allowance for, the different social grades and the degree of poverty of the children or their parents. The exception, of course, is with regard to nutrition. Here a definite and equal standard must be fixed, but even here it is possible to discriminate between what is apparent and what is real. Thus the fat, flabby, pale-faced, over-fed child of a well-to-do parent may have to be put down as " Indifferent," while the thin, wiry, and underfed child of slum parents may have to be classed as " Good " so far as nutrition is concerned.

With regard to the history of previous diseases, this should always be obtained from the parents. When there is any doubt at all, nothing should be put down. The value of these inquiries is exceedingly limited, and it is doubtful whether they serve any useful purpose. It is of very little use to examiner or nurse to know that the child has had measles ; an inquiry about a previous attack of rheumatism is perhaps more valuable, but, as a rule, it is better to avoid asking whether or not the child has suffered from any special disease, and to frame the inquiry in a general way. " Has the child given you any trouble ?" is a good question. If there has really been anything serious the matter with the boy or girl, the mother will generally give full details.

so far as she is able to do so. Even when these details are freely offered, the nurse should be on her guard against accepting all statements. Very often the child is stated to have had several attacks of pneumonia ; serious attacks of bronchial trouble in children are styled pneumonia by the majority of parents, and the information on a child's card that the child has suffered "repeatedly from pneumonia" must be taken with a grain of salt. The alleged disease is often founded on an entirely wrong diagnosis, but it is hardly ever necessary to endeavour to find out the truth. In a case where the doctor finds an anomaly or a defect that depends on some antecedent disease, it is of course different. In every case of a heart lesion, for instance, it is worth while to inquire if the child has had rheumatism or has suffered from joint pains or any acute fever ; in cases of discharge from the ear such an inquiry is also necessary. In cases of paralysis the history is also useful. These are points, however, with which the doctor will have to deal, and not the nurse.

The methodical examination of the child is conducted in different ways by different inspectors. Most doctors start by examining the nose and throat, ears, eyes, condition of the body generally, and then, when the child has been reassured and is placed at its ease by talking to it, they proceed to an examination of the chest. The reason is that a nervous or excitable child may be very much flustered by the thought of having to undergo a medical examination ; in that case its heart-beat will become more rapid, and, on listening with a stethoscope over the chest, various bruits or murmurs may be heard. It is important that the examination should take place while the child is at ease and not frightened ; in young children this is specially important. It may be necessary to talk to them for a few minutes, to interest them in something or other so as to distract their attention from the examination, or, in some cases, to make them jump or run round the room. The pres-

ence of the mother or father, or even of the nurse, is generally reassuring to them, and the absence of all instruments is desirable. In most cases it is sufficient to dispense with instruments altogether, although doctors still prefer to use their stethoscopes in listening to the heart and lungs. The examination of the throat is better done without a spatula ; if any is used, it should be a plain wooden one, and the child should be shown this before it is used, while it should be explained that it is not an instrument that is likely to cause any pain. Usually, however, it is quite sufficient to make the child lean back, and in that way to get a good view of the mouth and throat.

While the examination is going on, the nurse should see that there is no needless noise and disturbance. The other children should be kept quiet, and no conversation with the waiting mothers should be indulged in. The children should not be allowed to stand about partly dressed ; they should be dealt with in turn, and no waiting should be permitted. The doctor usually fills in the results of the examination himself, and writes out the cards. He also explains when there is anything to be explained to the parent, and advises with regard to treatment.

When any special cases are to be examined, the nurse must report to the doctor the special condition which demands attention. Dirty heads, running ears, suspicious rashes, and such like things, obvious to the nurse, should be mentioned when the child is brought forward for inspection, for they may no longer be present when the examination is made. In cases of ringworm, the nurse usually collects the stumps, and forwards them for examination. Where it is necessary to take a swab of a throat in a case of suspected diphtheria, this is done by the doctor.

Before the examination starts, the nurse should see that a small bowl of some disinfecting solution is placed ready for use when required. Sanitas or lysol, which

can be carried in a small bag and added to a basin of water, does excellently for making these solutions. In schools where the lavatory accommodation is poor, the nurse should see that a clean towel, a cake of soap, a nail-brush, and a basin of clean water is placed handy for the doctor's and her own use after the examination.

When the inspection has been finished, the nurse must see that everything is put back into its place, and that the room is tidied up. In the London County Council schools she has also to prepare the statistics. She has to keep a note of the particulars detailed on the cards, and to enter on special forms the information regarding the number of children examined, the conditions found, and the number of cards for treatment given out. These are signed by the doctor, who adds any remarks he may have to make. In addition, the doctor fills in the school registers, on which full particulars of every child found defective are entered for the information of the Care Committees. The routine followed in the infant classes differs somewhat from that in the upper standards. It is not always necessary to inspect the infants in detail, but those who have entered during the term are paraded before the doctor, who notes any obvious defect. It is then the nurse's duty to call his attention to any lesions she may have observed during her visit to the classes; such children are picked out for special inspection, and are examined in detail, the routine in their case being similar to that followed in the higher classes.

Provided she takes an interest in her work and possesses the qualities which are necessary in a good school nurse, the nurse will find the routine of medical inspection by no means so humdrum as it appears to be. There is always a certain amount of novelty about it; the parents and children one meets with are never the same, and the work has more of a human interest than out-patient work at a general hospital. At the same time it is clear that a certain amount of it must of neces-

sity be mere mechanical work, not to be shirked or slovenly done because it is mechanical, but to be carefully and methodically carried out. If doctor and nurse work cordially in co-operation, as they ought to work, the routine inspection is bound to be interesting and instructive to both.

The regulations of the Board of Education, under the Act of 1907, stipulate that the medical inspection shall be conducted in school hours, on school premises, and in such a way as to interfere as little as possible with the routine school work; that the convenience of the teaching staff and the circumstances of each school shall receive consideration, and that throughout due thought shall be given to the personal susceptibilities of all concerned. As far as practicable, the statutory medical inspection should take account of the following matters:

- (1) Previous diseases, including infectious diseases.
- (2) General condition and circumstances, height and weight, nutrition (good, medium, and bad), cleanliness, clothing (sufficiency, cleanliness, and footgear).
- (3) Throat, nose, and articulation (mouth-breathing, snoring, stammering, tonsillar and glandular conditions, adenoids).
- (4) External eye diseases and vision testing.
- (5) Ear disease and deafness.
- (6) Teeth and oral sepsis.
- (7) Mental capacity (normal, backward or defective).
- (8) Present disease or defect, deformities or paralysis, rickets, tuberculosis in all forms, diseases of the skin and glands, diseases of the heart and lungs, anæmia, epilepsy, chorea, ruptures, spinal diseases, and any defect or weakness unfitting the child for ordinary school life or physical drill, or requiring either exemption from special branches of instruction or particular supervision.

There must not be less than three inspections during the time the child attends school.

From this it will be seen that the inspection is by no means perfunctory, if it is to be carried out in accordance with the requirements of the Board of Education.

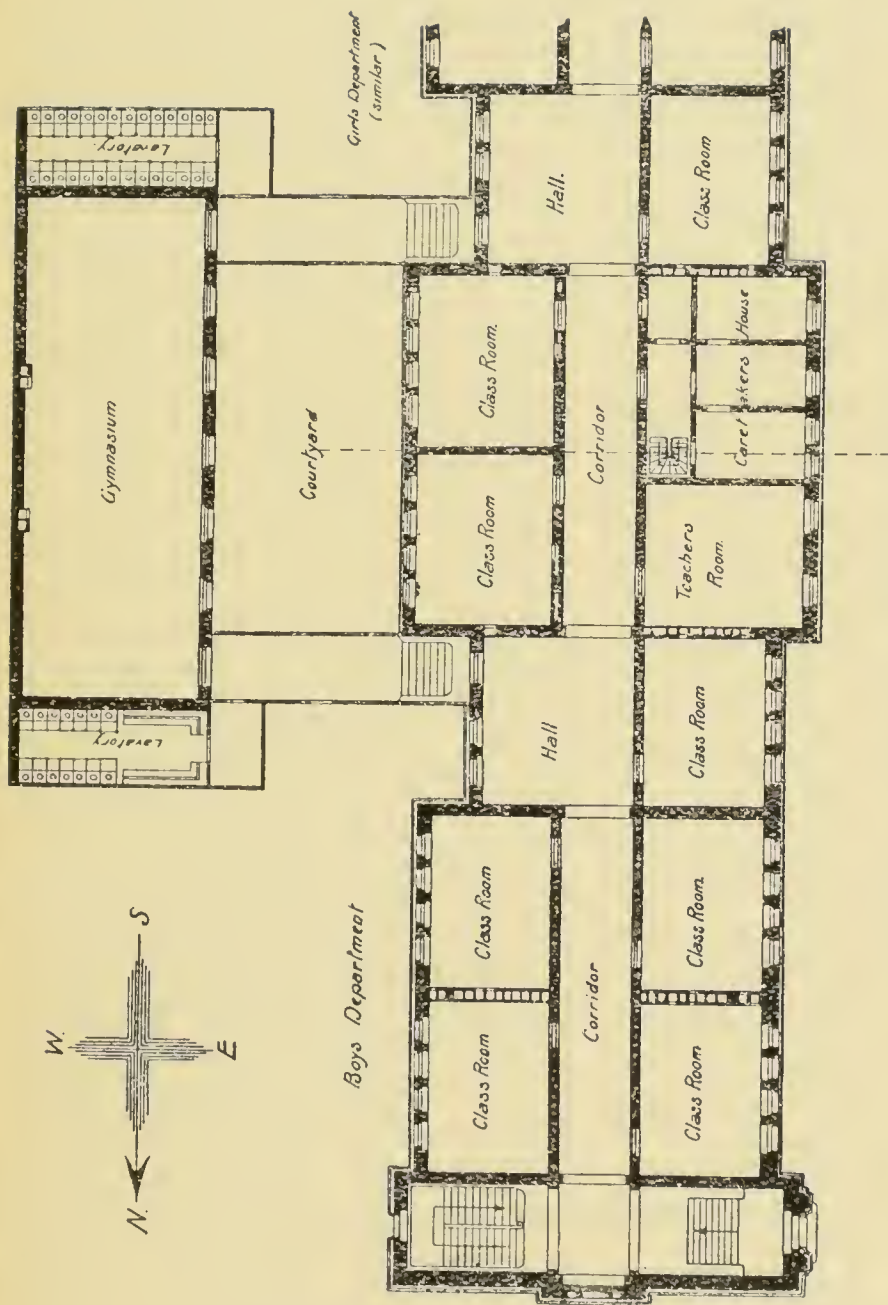
CHAPTER IV

THE HYGIENE OF THE SCHOOL

SOME acquaintance with the elements of hygiene is necessary on the part of the school nurse if she is to take an intelligent interest in her work. Not only should she pay attention to the details of hygiene so far as the school and class rooms are concerned, but she should also know something about the essentials of the hygiene of the dwelling-house in order to be able, during her home visiting, to give advice on various points to the parents.

The accompanying plan of a typical modern school shows clearly what are the requirements of a good school.

The ideal school should be built on a slightly elevated site, on dry gravel or sandy soil, away from surrounding buildings, and with plenty of open space surrounding it. The reasons for these desiderata are easy to comprehend. If the site is damp—in other words, if the soil contains much clay and mould—the building will be damp also ; at any rate, more difficulty will be experienced in keeping it dry. If the site is low-lying, surrounded by houses, or shut in by trees, the school will not get a sufficiency of sunlight and fresh air ; if it is too open, it will be exposed to wind. The proximity of noisy streets where there is much traffic is to be avoided, because the classrooms will have to be quiet, so that the teachers and scholars may carry on their work undisturbed. Care should be taken that no site is chosen which is in the



PLAN OF A TYPICAL MODERN SCHOOL.

neighbourhood of other disturbing factors, such as a factory with bad smells, smoke, and dust ; wood piles, that are a constant danger in case of fire ; garages or stables, that are equally obnoxious ; and public buildings, such as police courts or theatres. At the same time, the school should be in the centre of the district which it serves, so that the children will not have to walk long distances in order to attend. A radius of a mile and a half in the city, and two miles in the country, should be the maximum distance which the children have to traverse before reaching the school. The buildings should be properly arranged, in accordance with a definite plan ; they should be cheerful in appearance, so that the place does not give one the impression of a prison or a reformatory, and the general effect should be heightened by keeping the approaches to the building, the boards, windows, and outside of the school scrupulously clean and tidy. Wherever possible, trees and shrubs should be planted round, not only to add to the general appearance, but to shelter the building from wind, care being taken that such plantations do not exclude sunshine and light from the windows.

The class-room should be large, airy, roomy, well lighted, and bright. It is in these rooms that the children will spend the major part of their time in school, and care must therefore be taken to make them as hygienic and cheerful as it is possible in the circumstances. The walls and ceilings of the rooms and corridors should be painted in some light, cheerful colour, so as to insure the maximum of light in the room ; this paint must not be too shiny, so that it dazzles the eye when the sunlight falls directly upon it, and it must be of a nature to be easily cleaned by washing or dry rubbing. The floors should be of hard wood, smooth and polished, without being slippery ; the staircases, where the building is of more than one story, wide and roomy, with the steps low and broad, so that the children are not fatigued in ascending and descending.

Bannisters should be provided, and the sides of the stairway, to a height of six feet or more, painted with a dado of some colour slightly darker than the rest of the wall. The class-rooms should radiate from a central hall, which must be so placed that it is bright and cheerful, like the class-rooms themselves. The size of the class-room depends on the number of children which it will have to contain. In considering this point, two things have to be remembered—namely, the superficial space (known technically as “floorage”) and the cubic space. By law in this country every school-child must be provided with a floor space of 8 square feet and a cubic space of at least 80 cubic feet. As a comparison, it may be stated that in a hospital the floor space should not be less than 144 square feet, and the cubic space not below 2,000 feet.

A consideration of the subject of air and floor space brings us to the important matter of ventilation and air. Pure air consists of oxygen and nitrogen gases, with a very small quantity of carbonic acid gas, and a variable amount of water vapour. Of these constituents, oxygen is imperatively necessary to support life; the nitrogen is only intended to dilute this gas; the carbonic acid gas, above a certain amount, is a deleterious constituent. In breathing, the blood takes up oxygen, and the expired air is deficient in this gas, while it is richer in carbonic acid gas; the amount of nitrogen in inspired and expired air is the same. In a badly-ventilated room, the air will be rendered impure if the room is occupied. The changes in such air are as follows: the temperature rises; the amount of water vapour and of carbonic acid gas is increased; and certain organic impurities, such as gases formed in the intestines, are added, which give an unpleasant odour to the air. A healthy child will inspire 400 cubic feet of pure air during the twenty-four hours, and unless it obtains this amount its health will suffer. When there are many children in a room, great care must be taken to insure that the ventilation is

perfect. The class-room must be provided with proper windows that open to their full extent, so that the room may be ventilated by a natural current of air ; in winter, when the windows are closed, an open fire is perhaps the best method of warming and at the same time ventilating the class-room. Radiators are admirable in many ways for warming, but they are not a means of ventilation as an open fire is, and where they are used it is wise to have a fireplace as well. When only radiators are used, the windows must never be shut, and natural ventilation must not be interfered with. Certain ventilators or accessory apertures for the entry of pure and the passage of impure air are usually provided, and the nurse, during her visits to the class-room, should see that these ventilators are acting properly, and that they are open. Very often they are kept closed, so that the ventilation of the room is dependent mainly, if not entirely, on the windows and doors. A properly ventilated class-room, or, indeed, any room in which human beings are, should have a regular supply of fresh air entering, and a correspondingly regular amount of foul air leaving it. It is now generally accepted that for healthy adult persons no less an amount than 3,000 cubic feet of air per person must be provided per hour ; for children the amount is slightly less. This air must enter the room evenly and gently ; if it travels in or out at a higher speed than 3 feet per second, draughts are caused, which must be avoided, since they raise dust. The only method of ventilation with which the nurse has to deal is natural ventilation, in which this supply of fresh air is regulated by natural means ; in the artificial method fresh air is driven into the room by revolving fans, and the foul air extracted by specially designed suction apparatus. The natural means of ventilating a room are by the windows, doors, fireplaces, and other apertures, and care must be taken that these are not obstructed, but in proper working order. The importance of fresh and pure air cannot be overestimated, and

the nurse should do her utmost to impress upon the parents that one of the first essentials in a living or sleeping room is an adequate supply of fresh air. Where the air is more quickly used up by gas or other burners, the supply should of course be greater.

Next to fresh air, but almost equally important, is light. The class-room and the living rooms must be adequately lighted. Sunlight is a great disinfectant and germicide, and the growing child should get as much of it as possible. The class-room must be so arranged that it receives the largest possible amount of light during school hours ; nothing must interfere with this natural lighting ; the windows must be wide and lofty, with large clear panes of glass, and the light must be properly diffused so that it does not concentrate on one spot, and thereby interfere with the teaching by dazzling the eyes of the children. While it is necessary that the school-room should be "flooded with light," it is equally necessary that direct sunlight should not fall on the faces of the children while they are in class. The farthest corners of the room must be well lighted ; there must be no dark corners and nooks, and special care must be taken that the maps and blackboards are so adjusted that they receive the maximum of light without presenting a shiny, reflecting, dazzling surface to the eye. Curtains and blinds are quite unnecessary in a class-room which has been properly built ; in the dwelling-house they are permissible for æsthetic reasons, but it must be pointed out that they harbour dust and impurities, and are difficult to keep clean, especially in a slum neighbourhood.

On murky, gloomy days, and in the evenings, recourse must be had to artificial light, which in most schools is either gas or electric light. The burners or lights must be so arranged that they are out of the children's reach, that they give adequate diffused light which illumines the farthest portions of the room, and that they are properly guarded against fire risks. The varieties of

burners used are many, and no good purpose will be served by describing any in detail. In the homes of the children the nurse will meet with the objectionable open gas jet ; she should point out that this is dangerous, unhygienic, and wasteful, and urge that it be replaced by an incandescent burner, which consumes relatively less gas, and gives out a far better and much more steady light. In country schools oil-lamps are still in use ; they are objectionable and dangerous, and, unless carefully cleaned and attended to, give rise to smells. Where they are used, additional precautions must be taken.

The heating of the class-room is another important matter. The nurse should not imagine, from her hospital experience, that it is desirable that a room should be underheated in order to prevent it being stuffy. With proper ventilation, stuffiness—that is, the damming up of foul, impure, moisture-laden air—is impossible. In a hospital ward, the patients are warm and snug in bed, and it is permissible to have the temperature lower than in a school-room, where the inmates are often ill-clad and poorly nourished, and where they must of necessity sit still for the greater portion of the time. Proper warming should be one of the first essentials. The advantages of open fires over radiators have already been referred to under the section dealing with ventilation ; it may be added that an open fire warms the room just as sunlight does, by convection as well as by radiation. It is therefore a more sanitary method of heating than by radiators, but it is also more expensive and decidedly wasteful. The ideal way would be to employ both radiators and open fires.

No matter what method is used, it must warm the room in all parts ; children sitting on the top desks must be equally comfortable on the coldest winter day with those who are on the lower desks in the neighbourhood of the fire or radiator. This can only be secured by careful attention to the arrangement of the heating apparatus. Every room

should contain a thermometer, and it should be the endeavour of the caretaker, or whoever is in charge of the arrangements, to secure an equable temperature during class hours. The fires should be lit long before the children troop in to class, and the hot water turned on, where radiators are used, half an hour before class, so that the room can be properly warmed. No closing of the windows or doors must be permitted in order to augment the warmth of the room ; at all costs, efficient and thorough ventilation must be maintained. Halls and corridors must be equally well ventilated, warmed, and flooded with light during the daytime. Every fireplace should be provided with a proper guard in the shape of a screen of wire netting to prevent accidents ; this is especially necessary in the infants' departments.

The class-room must be bright and cheerful. This is secured by attention to the lighting, already referred to, by having the walls and ceilings painted in bright, sunny colours, and by judicious arrangement of pictures and furniture. Flowers and pot plants greatly add to the general appearance of cheerfulness, and are to be commended, provided the rooms are properly ventilated. In the infants' departments coloured dadoes, with pictures from nursery rhymes or fairy tales, add greatly to the brightness of the rooms, and are much appreciated by the children. A word must be said regarding the furniture of the room. This must be as simple as possible, and made in such a way that it harbours the minimum amount of dust, is easily cleaned, and strong in construction. The desks and seats must be proportioned to the height of the child using them ; the mistake of putting a large-sized child in a small seat, and a small one in a large seat, leads to various uncomfortable and strained positions on the part of the scholars, with the result that they develop postural spinal curvatures and other deformities. The ideal school desk has been much discussed of late years, and volumes have been written on the subject. All that is necessary to say here is that the

question must be settled by individual requirements ; no fixed rule can be laid down, except that already given that the desks must be proportionate to the size—that is, height of body and length of leg—of the children.

Overcrowding in schools is, unfortunately, the rule in this country, owing to the want of accommodation for school children. Ordinary classes in the London schools vary from sixty and more children to forty. The ideal class is probably of not more than twenty-five children, but in present circumstances it is impossible to attain to this. From a hygienic point of view—so far, at least, as ventilation is concerned—the average classroom is capable of accommodating the regulation number of children, since it has been designed with that object in accordance with the requirements of the Board of Education. Overcrowding in the home of the child is much more harmful, and this is a matter in which the school nurse can be of great assistance to the parents by pointing out the evils that result from such overcrowding. Here, again, the essentials are fresh air, light, and adequate air-space. It may be difficult to secure these, especially in a slum quarter ; but a careful parent, who is helped by the nurse's experience and advice, may do much to improve the condition under which his children live at home.

The lavatory accommodation provided in modern schools leaves much to be desired. Too few basins and too scanty a supply of water are the chief faults. The water is usually cold, the basin small, and the lavatory placed in an exposed position on a landing. Hot and cold water should be laid on, and the basins should be of the "tilting" style, so that they can be easily and quickly emptied, especially by the little ones. Overflow and waste-water apertures should be avoided ; they are difficult to keep clean, and are useless if the children have not been instructed in the use of the lavatory as they ought to be. The basins, taps, and appurtenances of the lavatory should be kept scrupulously

clean, and no child should be permitted to wash itself in water which has been used by another. Soap and towels should be provided, and the children must be taught to be economical in the use of both. A looking-glass in the lavatory and a few metal combs, which can be easily cleaned by boiling, are desirable. The water-closets and urinals, which are in charge of the caretaker, must be kept equally clean and neat. Here, again, there is a great variety of methods in use ; the best is probably the "trough flush" system, in which all the closets are flushed so many times a day by a strong stream of water from a central tank. Pull flushes are suitable only for the upper class closets ; infants and young children neglect to pull the chain, with the result that the closets are never clean. Where chains are used, they must not be loose, but must be guarded in an iron tube, so that only the handle of the chain—the pull—is free, since it has happened that unfortunate accidents have occurred through children entangling themselves—in a few cases with fatal results—in these chains. The children should be made to exercise care and cleanliness in using the closets, which must always be kept sweet and clean. The liberal use of disinfectants in a school lavatory is presumptive evidence of systematic inattention to ordinary cleanliness, and must not be permitted.

In many continental schools shower baths are provided in the basement ; some schools have even a swimming-bath, but these are luxuries which are not yet popular in this country. Doubtless we shall have them in the end, for it will soon be acknowledged that the old adage anent cleanliness being next to godliness is not merely a trite saying, but a hygienic truth. Attention to personal cleanliness and to the rules of hygiene is the surest way to preserve health, and is especially desirable in the case of school children. By training such children in these essentials, we shall in time get a generation that will insist upon its children having adequate means at school and at home for insuring the

necessary cleanliness of body without which no child can be reckoned in a fit state.

In this chapter we can only touch upon the most important points. The school nurse may with advantage take some trouble to study the subject of school hygiene, and she will find a simple manual on the elements of hygiene, an excellent help.

Water for drinking purposes should be supplied in every class-room, and must be renewed every day. Drinking-fountains or a special drinking-water tap must be conveniently arranged in the playground for the use of the children. It is better not to have a drinking-cup attached to these taps, since it is apt to become dirty ; the children should be instructed to make a cup with their hands, and drink the water in that way ; drinking from the tap itself must be strictly forbidden. Playground accommodation should be large, ample, and sheltered ; that for the infants must be so arranged that the children are always under the eye of the teacher.

CHAPTER V

THE NORMAL SCHOOL CHILD

THE children with whom the school nurse will have to deal are between the ages of three and fourteen years ; those below the age of five will be found in the babies' rooms in the infants' departments ; those below six in the infants' department ; and those above that age in the boys' or girls' department, as the case may be. It is therefore convenient to deal with the school child in three stages—in the babies' room, in the infants' department, and in the higher standards.

The school-going child is in a state of active growth and development ; with the infant in the physiological sense of the term—that is, before the milk teeth are erupted—the nurse will have little to do. She will, however, meet with the baby in arms in the homes of her charges, and may do much good by inculcating the elements of the hygiene of childhood and infancy into the mothers. From the commencement of the eruption of the milk teeth to the beginning of the eruption of the permanent set—generally the sixth year—it is customary to speak of the child as being in the state of childhood—what the French term *seconde enfance*. Such children are in the lower departments of the school—in other words, in the infant classes—and it is necessary to consider them in some detail.

The child, using the term in this strictly limited sense, is actively developing ; its bony system is rapidly being built up, its mind is expanding, its faculties are becoming

more active, and it is learning to make use of its inhibitory centres—in other words, to control its actions. It is highly desirable that the nurse should possess a knowledge of the processes that are going on during this time of life, and which are carried on until full growth is attained. Only through such knowledge can she judge whether or not the child is developing normally, and advise the parents with regard to the health of the child. “Growth,” as Dr. Camerer remarks in his interesting chapter on the height and weight of children, “means those processes in the healthy young body which, in accordance with the laws of Evolution, occasion an increase in size, weight, and mass of total body and its component parts.” Height and weight are not the only criteria of such growth, and it has been found that in young children the weight varies during the course of the day, being greatest in the evening when the child goes to bed, and lowest in the morning when it gets up. Similarly, very accurate measurements have shown that there is a slight difference between the height of a young child taken in the early morning and the height registered at night. The loss of weight during the night-time is generally supposed to be due to the elimination of water from the skin, the lungs, and kidneys. Variations in diet may greatly influence the weights recorded, and it is a well-known fact that there are still greater periodical variations in weight and height. The difference in height recorded before and after lying down are due to the physiological depression of the arch of the foot by exercise such as walking, and by the compression of the intervertebral discs; when the measurement is taken in the early morning it will generally be found that the child is a fraction or two of an inch taller than in the middle of the day or at night. These differences are not differences in growth; they are merely physiological variations which the nurse should bear in mind, since they show the active processes of metabolism and the greater effect of normal physiological influences in

the young. Weights and heights are now usually registered in the metric system, with the principles of which the school nurse should be thoroughly familiar. As it is convenient to have a ready comparative scale which can be easily referred to, the following table of average heights and weights should prove useful :

BODY-WEIGHT IN KILOGRAMMES.

Age in Years.	Boys.	Girls.	Age in Years.	Boys.	Girls.
3	14.7	14.2	10	30.5	27.0
4	16.5	15.7	11	32.0	29.0
5	18.5	17.0	12	35.0	32.0
6	20.5	19.0	13	37.5	37.0
7	23.0	21.0	14	41.2	43.0
8	25.0	23.0	16	50.0	52.0
9	27.4	25.0	18	60.0	60.2

It will be noticed that up to the age of fourteen the average weight of girls is below that of boys ; from fourteen to eighteen the average weight of the girls is a little above that of the boys. As a matter of fact, the average weight in London children is slightly above these figures.

BODY-HEIGHT IN CENTIMETRES.

Age in Years.	Boys.	Girls.	Age in Years.	Boys.	Girls.
3	93	92	11	135	133
4	99	98	12	140	139
5	104	103	13	145	146
6	109	107	14	151	153
7	115	113	15	157	158
8	120	118	16	164	160
9	125	123	17	168	161
10	130	128	18	170	170

Here, again, it will be noticed that the heights of the girls is a few centimetres below that of the boys, except at the ages of fourteen and fifteen, when the girls grow a trifle more rapidly than the boys.

Once more, it must be borne in mind that age, in itself, is no criterion in determining the amount of growth and nutritional change in a child. School-children should be judged, with regard to their nutrition and growth, not so much by their age as by their height and body-weight. A child is sometimes regarded as under-sized when it is really normal for its weight, especially when the height of its parents is taken into consideration. In estimating the data on which to found conclusions for filling in the section "Nutrition" on the medical report card, the school doctor takes into consideration, not only the weight and height of the child, but its colour, the size and state of development of its bones, the condition of its skin and musculature, and last, but not least, the same things in the parent so far as they can be gathered. A few broad rules, however, are convenient in making this estimate. Every child should show a progressive increase in weight and stature as it grows; if such increase is absent, there is something wrong, and the child should be reported to the school doctor for careful examination. The causes of such retardation are usually to be found in some constitutional trouble, of which rickets and inherited syphilis are the most common; or in malnutrition due to insufficient feeding, overwork, want of sleep or fresh air, or generally bad hygienic surroundings and inattention to the simple rules of health.

The normal school-child in the infants' department should be able to walk well, to look after itself to a very large extent, and to follow intelligently the simple instruction that is given in these classes. If it is deficient in any of these rudiments, it is a backward child, and the question then arises whether this backwardness is due merely to want of training or to natural dulness, under-develop-

ment of the mind and body, or to real mental deficiency. In the chapter dealing with mentally defective children, some of the signs which are met with in children whose mental faculties are abnormal have been discussed ; the school nurse should train herself to spot such cases, and to separate them, in her own mind, from those in which the backwardness is due simply to causes which may be remedied by proper training or treatment. It is in the infants' department that these peculiarities of the mental condition of the child will first be observed, and it is sometimes very difficult to find out whether or not there is any real ground for the teacher's complaint that an inattentive, dull, and stupid infant is mentally defective. The nurse, who sees such a child more frequently than the doctor does, and who is in a position to observe it at school and at home, will be able to give valuable information at the medical examination, if she keeps her eyes open and takes note of any peculiarity or characteristic that is to be observed.

The normal child should possess a soft, clear skin, and its gums and mucous membranes should be of a healthy red colour. Many children, however, give an impression of being anæmic when they are merely very pale-complexioned ; a glance at the gums and the lips will show that they are not really anæmic. Such children have usually a very transparent skin, in which the superficial veins stand out boldly ; they are slender of body, and have thin bones, with delicate, sharply-chiselled features. Care must be taken not to confound such cases of delicately skinned children with those who are badly nourished, anæmic, or delicate in the sense that they are suffering from some abnormal condition which impoverishes their blood and stunts their development. Attention to the child's habits and mode of life will often give a clue to the real state of things. A healthy child, no matter how delicate, will possess a healthy appetite ; it will take an active interest in its surroundings, in its work and play ; it will sleep soundly at night, and will

awake refreshed in the morning. Where a child fails in any of these particulars, its condition is not normal. Where it shows any disinclination to take part in sports in the playground, in romps during recess ; where it "is off" its appetite, as the mother says, or sleeps badly ; is drowsy during the day, irritable and peevish, it should be referred to the doctor for examination, since there is usually some underlying cause which occasions these symptoms.

The normal child should be able to use its senses in a normal and accurate manner. It should be able to read the type on a test card easily at the appropriate distance. An infant who does not know its letters can be tested, so far as the sight is concerned, by asking it to name small objects, similar in size to the letters on the card, at an equal distance. Colour blindness is relatively rare among children, but the infants usually do not know the names of the colours, and they must be tested by asking them to sort out different shades from a mixture of coloured wools ; this is not a good test, since discrimination of colour is largely due to training. Hearing and smell are easily tested in children ; feeling and tasting equally easily with a little care. Any abnormality in these senses is therefore readily noted, and should be reported to the school doctor. The intelligence of children in the infant classes is usually gauged by the teacher, who has many opportunities for satisfying herself whether or not there is any abnormality. It must be borne in mind that in young children fatigue and mental impressions act very strongly, and these may modify the intelligence considerably. Allowance should be made for these factors, therefore, in estimating the intelligence of such children. Similarly the young child is prone to disturbances from minor causes, which in older children would affect the health of the child but little. Digestive derangements and nervous conditions may cause violent symptoms in infants ; convulsions and sickness are much more frequent, and may

be due to quite slight causes. The young child is more liable to acute infectious diseases such as measles and diphtheria. There is no necessity, however, that any child should get these diseases. Too much stress cannot be laid on this fact, since it is still a common delusion with parents that it is well that their young children "should have had the measles." The nurse should do her best to oppose this idea, and should point out that there is no need to expose a child to infection, since the disease that may follow is always dangerous, and is bound to have a bad effect on the health of the child in the long run.

In the higher departments the same rules with regard to the nutrition of the children should be considered. Here, however, the child is stronger, better developed, in mind and body, and with its powers of resistance to adverse conditions proportionately increased. The bony skeleton now rapidly increases in solidity, owing to the ossification of various centres; but the full stature and the permanent ossification of all the centres are only obtained after the age of twenty-one years has been reached. Growth from the tenth to the fourteenth year is gradual, but usually just before school-leaving age there is a rapid advance in the increase in height and weight. This is due to the approach of puberty, a period which, both in boys and girls, is attended with special dangers if the child is weakly and delicate. These dangers should be pointed out to the parents, and it should be added that greater care is needed, both as regards the mental and physical health of the child, than during the earlier years. Nervous conditions, overwork, infectious diseases, and rheumatism at this period may give rise to permanent ill effects, from the results of which the child may suffer all its life, and which may sensibly diminish its life.

The hygiene of childhood is a subject on which the school nurse should not only be fully acquainted, but on which she should also be able to instruct the parents

and the children themselves. Its essentials are very simple and easily comprehended, since they are, after all, the ordinary rudiments of personal hygiene, with some slight modifications. The main things to be borne in mind are that the growing child is a delicate organism, easily injured by apparently trivial conditions, and that, therefore, extra care should be taken to give it the best hygienic surroundings possible. It is often difficult to carry out the precepts, especially in slummy neighbourhoods where the conditions of housing and feeding leave much to be desired. It is here that the nurse's experience in district visiting will stand her in good stead, for it is only when she knows the difficulties with which the parents have to contend that she will be able to give advice of practical value, and hints that will be of real service to everyone concerned. With the co-operation of the class teachers, the nurse may give short lectures on the subject to the elder girls ; the school doctor will be able to help her in this, and may be in a position to provide her with slides and specimens for demonstration purposes. Generally every school possesses a magic lantern, and the use of this apparatus is a great help in illustrating these health lectures, since the pictures impress certain points on the minds of the scholars in a way which mere talking does not do.

The essentials of personal hygiene are comprised in cleanliness, fresh air, moderation—these three ; but none of them is less important than the others. Scrupulous cleanliness in body and dress, in surroundings both in school and at home, must be the first thing insisted upon. It is an unfortunate fact that the lavatory arrangements in most of our Board schools are so primitive as they are at present ; in this direction the Continental schools are far ahead of us, since most of the new ones possess admirably arranged shower baths—some, indeed, swimming baths—and all washing accommodation, with hot and cold water laid on. With us, where only cold water is provided, often in tiny basins which

must be shared by several pupils, it is difficult to insist on proper washing of the face and hands, let alone the whole body, on a cold winter's day. Probably we shall have all this changed for the better in course of time, but at the present the children must make the best of the arrangements provided, and the nurse and teachers should see that the lavatories are properly used. No child should be permitted to remain in class with dirty hands and face. Home conditions, especially in the slums, are such that it is almost impossible for the children to get decent baths. The swimming classes, which in summer are institutions in most schools, can hardly be looked upon as cleansing classes ; in fact, they should not be regarded in that light, and for hygienic reasons a child who takes part in these swimming lessons should be made to soap its body thoroughly and wash itself under a shower before it enters the swimming-bath. This, however, is a counsel of perfection which in present circumstances it is almost impossible to carry out. The children should be told that it is imperative that they should keep their bodies clean ; cleanliness should be systematically inculcated in the youngest infant who attends school, and the nurse should show the child how it is possible, with a little soap and water and the aid of a bit of flannel or loofa, to cleanse the body thoroughly. Not only the hands and face and the upper part of the body, but the lower parts, and especially the feet, should be subjected to frequent ablutions, and, wherever possible, a weekly hot bath should be taken. The cold morning bath in the case of children should be discouraged, especially in winter ; it is not at all a cleansing process, and its hardening and invigorating effects have been much overrated. Where it is impossible, for home reasons, to obtain a thorough morning or evening wash, the child should be instructed how to cleanse itself by dry rubbing with a coarse towel. The nurse should draw the parents' attention to the advisability of using a superfatted soap in washing the

children ; alkaline soaps often cause irritation, and their use may lead to an actual " application dermatitis," which is both unsightly and annoying.

Cleanliness of the nails, ears, nose, and teeth should be insisted on. The nails should be kept short, especially where the child is in the habit of biting them ; the ears should be wiped out with a soft towel or handkerchief ; the teeth should be kept clean, with a proper soft-haired toothbrush, which the child must be instructed to take care of and rinse out after use. After indulging in sports in the playground, the children should be made to clean their faces and hands, and proper time must be allowed for this, before they are called in to class. The hair must be looked after, and brush and comb frequently used. Where there is any abnormal condition of the hair or scalp, the child must have a separate brush and comb, which must not be used by the other children.

Next to cleanliness of person come cleanliness and orderliness of dress. Here, again, in the case of poor children, we must make the best in the circumstances ; the clothing of such children generally leaves much to be desired, as it is ragged and worn out. It should, however, be clean, and it is more imperative that the underclothing should be good than that the coat or dress should be faultless. Some children who are well dressed, so far as the upper clothing is concerned, wear entirely unsuitable under-garments ; in some cases the smaller children are tightly sewn up in their clothing. Counsels of perfection here again are not of much use, but the nurse can do a great deal by showing the parents how to deal with the clothing, and how to make it more serviceable if she has paid some attention to the subject and interests herself in the matter. Woollen underclothing is generally the best for children's wear, since it is warming, and does not chill the skin when it is wet with perspiration ; it is, however, relatively expensive, so that cotton and linen is preferred for economy's sake.

Undue exposure of the legs and arms in young children must be avoided. A warning should be given against the wearing of flannelette underclothing owing to its inflammability, and the parents should be made acquainted with the fact that fireproof flannelette is as cheap and in many ways superior to the ordinary article. Celluloid collars, worn by the boys, are theoretically equally dangerous ; in practice they hardly ever give rise to any accident, and their use may therefore be allowed, though the children should be told of the danger that undoubtedly exists.

One of the most important points to which attention should be paid is the footgear of the children. Proper boots should be worn, with thick soles and square toes, together with warm stockings. Where the boots are broken and dilapidated, so that the wet enters them and the child's feet are constantly cold and damp, it is better to take the boots away and let the child go barefooted. The teacher or nurse should see that in such a case the child at least takes off its boots when it sits in the warm classroom, so that its feet get a chance of being dried. Most parents object to their children going barefooted for social reasons ; it is taken to be a sign of poverty. Others, again, object on the ground that the child will catch cold. The nurse should point out that both objections are unfounded, and may with advantage draw attention to the fact that the children of well-to-do parents often go barefooted or wear sandals. In schools where dancing lessons are given, a great deal of good may be done by making the children dance barefooted ; this has already been done in some country schools, and in one or two cases in London, with the best results. The use of badly fitting or indifferent boots constitutes a real danger to the child's health, since from it may result gastric troubles, deformities of the toes and feet, and general impairment of health. It is therefore well to lay stress on the point and to endeavour to make the parents see that it is better for the child

to come to school with bare feet than with boots or shoes that are sodden through and through with wet and mud ; the change, in the majority of cases, will be highly appreciated by the children themselves once they have got used to the novelty.

In defective children who wear glasses or apparatus for the correction of special deformities, the nurse should see to it that they understand how to take care of these aids. The spectacles must be properly looked after, and the glasses kept bright and undimmed. Similarly care should be taken that splints, corsets, or stays are kept clean. Another point to look to is the tightness of the clothing. Many children are swaddled in a variety of garments, under the mistaken impression that they are safeguarded against catching cold by the multiplicity of such articles of personal adornment. In others the dress is too tight round the waist or the neck. No neck band, collar, or upper part of coat or vest or bodice should be so tight that it does not admit of two fingers being easily inserted between the dress and the skin of the neck. Stays and tight corsets in girls should be discouraged ; this especially should be a subject on which the nurse can give valuable instruction, especially when she takes the girls into her confidence and explains to them, in clear and simple language which they are able to understand, the bad results that follow abnormally tight lacing. In all these matters she should bear in mind that her own example, so far as dress and personal cleanliness, and indeed all the essentials of personal hygiene are concerned, will greatly influence the children. If they see that nurse is careful in all these things, they will take their cue from her instinctively and try to emulate her ways.

Cleanliness in habits and surroundings will follow if proper care has been taken to inculcate the teaching of personal cleanliness. Here again the value of example is difficult to overestimate. If the children are trained in habits of orderliness and cleanliness in the school-

room they will not be satisfied with dirty rooms at home and indifferently clean surroundings. In her home visiting the nurse may tactfully draw attention to such defects as she observes, and offer to show how they may be remedied. Her help will generally be taken in good part, provided she goes about the business in a sympathetic and tactful way, and takes care not to injure the susceptibilities of her audience.

The second essential, fresh air, is as important as the first. The growing child needs more oxygen than the adult in proportion to its size, and it is therefore of the greatest importance that it should get the largest possible quantity of fresh air. At school adequate provision for this is usually made, but the conditions in the home are often very bad, and the nurse must use her experience and mother wit to remedy them wherever possible. Here again she will find the fetish of "catching cold" in opposition to her endeavours to secure the requisite supply of fresh air in bed and living rooms; however, she must not allow this to intimidate her, but must lay stress on the necessity for providing fresh air. The child must sleep with its windows open, unless the dampness or fog of the neighbourhood prevents it. It must take every chance to fill its lungs with fresh air when it has an opportunity to do so, and one of the first essentials to that end is that it should learn to breathe properly through the nose and not through the mouth. Mouth breathing allows the cold air to enter the lungs almost unchanged; in normal breathing, no matter how cold the surrounding atmosphere may be, the passage of the inspired air through the nostrils and back of the throat warms the air taken in to body heat, so that the stream of air entering the lungs is always of an equable temperature. This is not the case when the air is breathed in through the mouth, and the respiratory troubles from which mouth breathers suffer are usually due to this irritation by the cold and impure air. Bad habits of breathing, snoring at night, and

breathing with the mouth wide open, should be corrected by proper training ; for instance, if a child habitually snores at night and lies with its mouth wide opened, the parent should waken it and make it close its mouth ; a little perseverance with this treatment will usually suffice to cure it of the habit. Care should be taken that the child does not sleep in a room where a gas fire or open gas burner is allowed to burn low, especially with the windows closed. Many children will crouch over a gas fire in winter time, with the result that they breathe in the impure air, and suffer from a mild degree of chronic gas poisoning, which shows itself in profound anæmia and malnutrition. After school hours during the daytime the children should be encouraged to be in the open air as much as possible.

Moderation in everything, except, possibly, in sleep, should be the rule in childhood. The new born infant is a very sleepy creature ; except when it wakes to take food it is continually asleep. An infant in the baby-room must be allowed to sleep when it likes ; a child of five years wants at least twelve hours sleep and a child of ten, ten hours ; after that age eight to nine hours is the minimum that must be allowed. Usually school children get too little sleep, with the result that they are fatigued and their general health suffers. They must be made to go to bed at an early hour, and must be trained to observe regularity in going to bed and in getting up. The nurse will find that in general parents are quite willing to see to it that these simple rules are followed once their attention has been drawn to the importance of securing proper sleep ; where a child is kept up late for the purpose of running errands, or is allowed to play about in the streets or to do street trading, it is usually because the mother thinks that no harm is likely to result from this habit. When the undesirability of this practice is pointed out to her, she usually shows herself quite willing to alter the child's habits.

The diet of the school child should be plain and

nourishing ; in the special chapter dealing with this subject the details are discussed. Exercise and play should be proportionate to the strength of the children, and care should be taken that they are not fatigued by long standing or running about. The hours of work in classes are regulated by the requirements of the Education Authority ; in the majority of cases they are too long, but the teachers usually display considerable ingenuity in varying the interest of the lessons, so that there is a constant succession of changes which somewhat counteracts the long hours. Some attention should be paid to the home-work, since it is often disproportionate to the age and capacity of the child ; where a boy is a street-trader outside school hours, for example, he needs more food and more sleep than where he simply does class-work. Every child requires exercise and relaxation, and it should be permitted to indulge in both in moderation, so that it does not overtax its strength. Coddling is as harmful as neglect in many cases, and what should be striven for is the happy mean between the two extremes.

The school nurse should take some interest in the children under her charge, and should investigate their habits and the conditions under which they live. Bad habits may be corrected by explaining to the children the bad results that follow indulgence in them. Children with abnormal proclivities should be reported to the school doctor, since there is usually some cause for these. Nail biting, chewing lead and slate pencils, dirty habits in class, fits of temper, and pronounced untidyness, may thus be due to some physical defect, which may be removed by proper treatment. On all these points the school nurse can give instruction to the elder children. In course of time her activities in this direction will probably be much amplified, and it is therefore necessary that she should keep in touch with whatever goes on in her department and in the domain of childhood—its physiology, psychology, and pathology.

CHAPTER VI

THE DIET OF THE SCHOOL CHILD

THE requisites for an ideal diet are exceedingly simple, but it is not always easy to obtain them, and in many cases, especially where the parents are poor, shift must be made to get the nearest approach to perfection which is possible. A perfect diet should fulfil certain conditions. It should, in the first instance, contain the appropriate "proximate principles" which go to form the tissues of the body. These proximate principles or constituents are water, carbohydrates, proteids, fats, and mineral salts. Proteids are highly complex bodies which contain the elements carbon, oxygen, hydrogen, nitrogen, and sulphur; they form the large percentage of all foods, and are found in both animal and vegetable substances, which are used as articles of diet. As an example of an animal proteid albumin, the white of egg may be cited; as an example of a vegetable proteid, we have the proteid contained in flour. All proteids are coagulated by heat; some are soluble in water, while others are insoluble, their solubility affording a comparative easy means of classifying them into groups. For a description of the various proteids the nurse is referred to a textbook on physiology.

Carbohydrates are compounds of oxygen, hydrogen, and carbon, and the most common representative of the series used as an article of diet is cane sugar. Fats are compounds of glycerine with the fatty acids, and the chief fat used as a food is butter. The mineral salts

necessary in food are common salt or sodium chloride, phosphates, and iron salts, all of which are required for the proper nourishment of the tissues of the body.

A perfect food, then, should contain all these constituents, but it should fulfil another condition as well : it should contain them in the necessary proportions. We therefore get the second requisite of a perfect diet—namely, that it should contain these proximates in the necessary proportions. Milk, for example, is an ideal food for the young child. It contains proteids in the form of milk albumin and casein ; carbohydrate or sugar in the form of lactose or milk sugar ; water ; fat in the form of cream ; and certain mineral salts, such as phosphates and chlorides of calcium and soda. But it contains too much water, relatively, and too little iron to make it an ideal food for the adult. Children fed purely on milk grow pale and anæmic, and an adult will have to consume large quantities of milk in order to get the proper proportion of proteid necessary to repair his tissue waste. Eggs again would be perfect foods, were it not that they contain too little carbohydrate, starch or sugar. Bread is a perfect food if it is combined with fat, for it is deficient in fat, and if it is taken with water of which it contains too little to supply the body.

Thirdly, the proper diet should be in sufficient amount to make up for what is lost from the tissues. Food is necessary to give energy, heat, and strength to the body, and to repair the waste of the tissues. If less food is taken than is sufficient to repair such waste, the body loses in weight. If more is taken than is necessary to repair the waste, the superfluous energy is stored up as fat, or a great deal of the value of the food passes away in the excreta.

Fourthly, the diet should be adapted to the want and the work of the individual. A growing child needs more food than an infant ; an active adult again requires more nourishment than an old person who does not do much work. A labourer, doing hard work, needs

more food than a man who leads a sedentary life, and does not waste much energy. It should be borne in mind, however, that it is not purely manual work that consumes energy; brain workers need as much food, proportionately, as working men do. The diet should also be adapted to the climate and environment of the individual. In cold weather the body needs more heat; that must be supplied to it in the form of heat-producing foods—carbohydrates. In hot weather, again, it needs much less heat, and the amount of fats and carbohydrates should be diminished.

Lastly, the diet should be palatable, and easily assimilable. This may seem unimportant, but as a matter of fact it is a point to bear in mind in considering the question of food. A vegetable diet, such as is recommended by vegetarian enthusiasts, may contain all the requisite proportionate principles, and yet it may be unsuitable owing to the fact that it is either unpalatable or less easily digestible than a meat diet. A pound of lentils, for example, contains much more proteid than a beefsteak, but a beefsteak, in the majority of cases, is much more easily digestible, or in other words the individual obtains more from it with less expenditure of energy in digesting it, than from a pound of lentils, a large part of the nourishment contained in the latter passing out of the body in an undigested state. Again, a constant provision of one article of diet is apt to become monotonous and unpalatable, and, therefore, it should be a rule in dietetics to vary the diet as much as possible.

These preliminary considerations, which, for the sake of simplicity, are given as briefly as possible, are necessary in order to point out what matters the school nurse, in considering the question of the school child's food, should pay attention to. A healthy man, doing a fair amount of work, loses daily, through his skin, lungs, excretions from bowel and kidneys, about 270 grammes of carbon and about 18 grammes of nitrogen.

This loss will have to be made good by food, and it is always necessary that he should obtain a little more than he loses. It is therefore necessary that his daily intake of food should contain at least an amount of the proximate principles sufficient to restore to him the amount of carbon and nitrogen which he has lost. The proteids contain too much nitrogen in proportion to carbon, and it is therefore inadvisable that he should be fed purely on a proteid diet, as in that case he will take in more nitrogen than he requires and too little carbon, since a purely proteid diet is highly "satisfying." The difficulty is got over by combining the proteids with carbohydrates and fats which do not contain nitrogen but contain relatively large amounts of carbon. Many diets have been suggested as typical; the simplest of these is that of Ranke, which contains all the proximate principles in suitable proportions. Ranke's diet consists of 100 grammes proteid, 100 grammes of fat, and 250 grammes of carbohydrate. Translated into ordinary language this amounts, approximately, to the following mixed diet: 8 ounces of lean meat, 10 ounces of bread, $\frac{1}{2}$ pint of milk, $\frac{1}{2}$ ounce of butter, 16 ounces of potatoes, and 3 ounces of oatmeal. This is a fair diet for an adult who does a moderate amount of work. If more work is done a relatively larger quantity of food must be consumed to supply the body with energy and to repair the waste.

The average child of school-going age requires proportionately more food than an adult—that is to say, when we take body-weight as a criterion in forming a diet, the school child will need, pound for pound of body-weight, more food than an adult. It also needs more proteid food. Physiologists are in the habit of calculating dietaries by the fuel value which they contain; they speak of calories, a calorie being a heat unit, or in other words the amount of heat necessary to raise the temperature of a gramme of water by 1° C. The caloric value of proteid is approximately 4,000;

of fat 9,000, and of carbohydrate 3,800, in round figures. The Ranke's diet scale is equivalent to a heat value of about two million calories, and a school child needs about three-quarters of that amount, roughly, per day. It is unnecessary here to go deeply into the consideration of the various heat values of mixed diets ; with the above given figures the nurse may, if she likes, calculate for herself the heat value of the ordinary menu if she is able to estimate the weight of the various constituents. All that is necessary is to multiply the weights by the caloric number of the constituent.

The school child, as a rough rule, should have three good meals a day, and these must be of the nature already described—that is to say, they must be easily digestible, must contain the various constituents in requisite proportions, and must be suitably varied, while their sum total must be sufficient to supply the child with the heat value it requires. With children of well-to-do or careful parents it is hardly ever necessary to interfere ; if their diet is unsuitable it is generally through being too abundant. The child in that case gets more food than it wants, and a strain is thrown upon its excreting organs to eliminate the surplusage of which its tissues cannot make use, or sometimes it gets unsuitable food and does not obtain the requisite amount of heat value. In poorer class children, however, the matter is different. Such children are usually underfed. Their diet is not only insufficient, but in many cases unsuitable. This is especially the case in large towns, where vegetables and meat cannot be cheaply procured, and where bread and margarine is the staple article of food with the children. In winter the want of good food is more pressingly felt by such children ; they need more heat, more fat, and carbohydrate, and the bread, weak tea, and margarine, which they get for breakfast, luncheon, and dinner is quite insufficient to supply them with this. In such circumstances the child becomes anæmic, it rapidly

loses weight, and its general health deteriorates so that it is less resistant to infection by disease.

Of late years much has been done to cope with these conditions of underfeeding. In France, school canteens have been established where the poorer children can obtain well-cooked meals, and in England, largely through the pioneering efforts of Dr. Airy at Birmingham, and Dr. Ede at Gateshead, the matter has been earnestly considered, with the result that a special Act was passed in 1906 which gave to the local educational authority the power in certain cases to give meals to school children who were in want of them. The Act provides for the establishment of feeding centres, and for the recovery of the cost of feeding the children, where such is possible, from the parents. The Act is voluntary—that is, it is left to each local authority whether or not to adopt it in its own district. The funds are raised through voluntary subscription, or by a grant from the rates, and the authority of the Board of Education is required before any money can be spent on providing free meals. In this scheme the school nurse is considered. She can recommend a child for free feeds if she thinks that such a child is in want of proper nourishment. In most centres a particular form is obtainable on which full particulars of the case are to be entered. This form is passed on to the committee that has charge of the feeding arrangements, and this committee considers the case on its merits and grants or refuses the application. Usually the recommendation by the doctor or school nurse is sufficient to enable the child to benefit by the free meals that are given at the centre.

The food served out at these feeding centres varies, and care is usually taken to see that the requisites of a proper diet are kept in mind in compiling the daily menu. Usually only one meal is given, in the middle of the day; it is often, however, important that the child should have a proper feed before it begins its

class work, and the nurse should ascertain if it gets a breakfast at home. If it does not, she should recommend it to the teacher for extra feeds; a slice of bread and dripping and a drink of milk are better than nothing. Unfortunately there is at present but little provision made for such extra feeds, and the cost usually falls on the teacher, who may, however, recover a part of it on application to the authorities in necessitous cases. The arrangements made for free feeds vary in different districts. At Birmingham both breakfasts and dinners are supplied, the former meal being particularly suitable, and being served on the school premises. At Bradford, Brighton, Manchester, and some other towns, dinners only are supplied at a cost of a penny or twopence per child. The menu is varied, and includes meat, pudding, vegetables, and sometimes fish. In the London district, dinners are given; here and there breakfasts are provided as well. The food is generally well cooked and appetizing, and the benefit to the children from such meals is unquestionable. On the Continent the newer schools have special kitchens attached to them, where the food is cooked and served to the children in special eating rooms. In Italy, at least one town has established a particularly interesting system, under which a dinner is served in a separate class-room, at which all children, no matter whether their parents are rich or poor, are compelled to attend. This ensures that the children shall be uniformly well fed.

The school dinner is a valuable institution, for it can be used as a means of educating the children in politeness and manners. The attendance of the school nurse is not usually required at such meals, but she should make a point of interesting herself in the arrangements and attending one or two meals to watch the behaviour of the children. These attendances can be utilized to teach the children the elementary principles of dietetics, and are often instructive in affording the nurse a clue as to the health of some of the children.

A knowledge of elementary cookery is usually possessed by every school nurse, and it is a valuable asset. In her home visiting she will be able to avail herself of that knowledge, and may give valuable hints to the parents. It is, indeed, astonishing what an amount of ignorance exists among poorer families in this country with regard to the ordinary simple rules of cooking food, and generally preparing it for the table. A large number of mothers who supply the daily family dinner waste three-quarters of the nourishing qualities of the food through not knowing how to utilize it. The general way of boiling a leg of mutton, for example, is to put it in a saucepan of cold water and then to heat it slowly to the boiling-point. This is all very well for making mutton broth, though it is by no means the most economical manner in which to prepare that appetizing dish, but as a means of boiling a leg of mutton it is wasteful in the extreme. By this method the juices of the mutton are gradually extracted by the water, and the meat itself becomes hard, flavourless, and is robbed of its best qualities. The proper way is to place the leg of mutton in a saucepan of boiling water. This coagulates the surface albumin of the meat and forms a kind of coating of coagulated proteid round the meat, in which the rest of the mutton stews as it were, so that its nourishing qualities are retained. Prepared in this way the meat is juicy and tender, though the water in which it has been boiled is, of course, not in the nature of soup. Nourishing and satisfying soups may be made out of bones, and these may be flavoured with an admixture of various vegetables. The art of preparing soups is comparatively unknown to the average English workingman's wife, and if the nurse has paid some attention to it, she may be able to teach the mother how to utilize remnants which are now discarded, but which, with proper preparation, may be turned into excellent and nutritious dishes.

The question of expense will, of course, largely influence

poorer parents in providing meals for their children. The cheapest articles of diet must be procured, and rigid economy is indispensable. If the nurse is acquainted with the food value of various articles of diet, she may be able to give much good advice on this point. Some foods are relatively dearer than others because they contain less nourishment than other less highly priced articles of diet. Thus, for a poor family, it is more economical to buy leguminous foods, such as lentils and beans, than to eat much meat, and by proper care a sufficiently generous and appetizing menu may be made from relatively cheap goods. Fish, for example, is less commonly used by the poor than it might be. It is a comparatively cheap and highly nutritious food, which can be utilized in many different ways so as to vary the menu. Fish soups or broths, for instance, are easy to prepare, and offer an agreeable change to the stock mutton broth. Vegetables have already been alluded to; they can be served in many different ways—baked, boiled, steamed, or stewed. The difficulty in poor families is generally with the fats. Margarine is a cheap and convenient substitute for butter; dripping is another, and bacon fat may also be used. In some ways a food can be prepared in a more nutritious manner than in others. Thus when eggs are used it is better to have them fried, so that the child can get some of the fat in which they are fried on its bread. Cocoa, again, is relatively more nutritious than tea, and is a much more suitable drink for children than the latter. When tea is used it should be weak, and it is best to dilute it largely with milk. Milk, however, is almost a luxury with poor children, but the nurse may do good service by drawing the parents attention to the facilities which now exist in every large town for obtaining dessicated milk. This can be readily and easily prepared with water, and is a highly nourishing and valuable preparation which is sold at a low price. There is still some prejudice against its use, especially by the poorer classes this

arises entirely from ignorance. Dried milk is one of the best and cheapest foods that are within reach of the poor, and may be utilized in many ways—for instance, in the preparation of milk puddings.

The staple article of diet with the poor is, of course, bread. All things considered white bread is more nourishing than brown, and where other things are equal the child should get white bread. "Standard bread" has no particular advantage over ordinary good white bread, and is a trifle more expensive. It is, of course, superior to white bread, in that it contains more mineral salts and perhaps more proteid, but it is easily adulterated and the adulteration is not readily recognized as is the case with white bread. Bread should be eaten with fat, or with jam. The last is now so cheap, and all things considered, so good, that parents should be urged to supply it to their children wherever possible. Potatoes, which consist largely of starch (carbohydrate), have a low food value, but are cheap, and can be served in so many ways that there is no reason why they should only figure at the table in the form of boiled potatoes. They may be fried, or when boiled allowed to get cold and made into a salad with some oil, milk, and condiment. Oil is very little used in this country; it is a very valuable heat-producing food, but it is unfortunately by no means cheap.

The food of the school child is a matter of the greatest importance. Unless the child is properly fed, its health must inevitably suffer, and it cannot be expected to do its school work properly. In many cases underfeeding is due less to poverty than to carelessness in the preparation of the food, and a little attention to the serving of the meals and to the quality of the food given will work wonders. It is just in these directions that the school nurse who understands something of cookery, who is tactful, and willing to help with advice, may be of the utmost help to the parents, and through them to the children. The little extra trouble involved in interesting herself in these matters will be amply repaid by the results.

CHAPTER VII

SKIN DISEASES

OF the various conditions with which the school nurse meets none is more puzzling, perhaps, than the varieties of skin diseases. The accurate diagnosis of these lesions is often very difficult, and in the majority of cases, where there is any trouble in recognizing the particular kind of disease, the diagnosis must be left to the school doctor. All that the nurse is concerned with is the question of contagiousness. She must, therefore, be able to recognize those diseases of the skin which are a danger to the other children who are not afflicted with them, owing to the fact that they are contagious. At the same time, she should have a general idea of the varieties of skin lesions met with, and for that reason it is necessary to go into some detail and to describe the main features which are more or less general to all diseases of the skin.

In such description certain technical terms are used, and these must be briefly referred to and explained. An erythema, or rash, is a reddish appearance of the skin caused by the dilatation of the small surface capillaries, and may therefore be looked on as a cutaneous inflammation ; it is, in other words, simply a reddening, and may be due to any cause that suffices to irritate the skin. Certain primary lesions are spoken of in all descriptions of skin diseases ; these are the erythema, the macule, the papule, the blister, vesicle, and bleb, the pustule, the wart or tubercle, and

the wheal. Lesions in the second stage are described under the names of excoriation, fissure, or crack, scab, scale, ulcer, and scar. The secondary lesions are the results of the primary when these are left untreated or go on to their natural termination.

By a macule is meant a local discoloration of the skin ; the coloured area is not raised and cannot, therefore, be felt by the examiners hand or finger ; a port wine stain or capillary nævus and the macules which are seen in a case of acquired syphilis are examples of this lesion. A papule is a little elevation of the skin, reddened or not, as the case may be ; when it is fairly large it is called a tubercle. The rash in measles is papular, but the papules are flattened and not so well marked as in a case of chicken-pox. A vesicle is a little collection of fluid underneath the skin ; when it is large it is spoken of as a bleb ; the term blister is generally applied to a bleb which has been formed by direct irritation. A pustule is a vesicle the contents of which have become purulent ; good examples of these lesions are found in chicken-pox. At first the eruption is papular ; then the papules become little vesicles, and finally the fluid in these vesicles becomes purulent and the rash is said to be pustular. By a wheal is meant a large irregular papule, which appears suddenly and is generally the result of surface irritation, as in nettle-rash or mosquito bites. A wart is a small, thickened skin tumour, which is pedunculated—that is, it has a little stalk ; when it is without a stalk, and somewhat larger, it is known as a papilloma. An excoriation is an abrasion of the surface of the skin, due to chronic irritation ; its surface is generally somewhat moist, and the surrounding area of skin is reddened. A fissure is a narrow crack, and is really a linear ulcer of the skin. A scab is the dried crust formed by blood, or serous or purulent fluid exposed to the air owing to the breaking of a vesicle or pustule. A scale is a portion of the superficial layer of the skin which has been thrown off

through malnutrition or chronic irritation. An ulcer is a deeper excoriation in which more tissue has been lost, so that an excavation of varying depth has been formed, which is covered with granulations. A scar is the result of an injury to the skin involving loss of tissue, which has been replaced by scar or fibrous tissue.

In examining a "skin" case, the nurse should pay attention to the following points: The presence of irritation, whether there is any obvious cause for it or not; the nature of the lesion, whether it is papular, pustular, vesicular, or merely erythematous; whether it itches, is painful, or causes no symptoms; its history, whether it is an old lesion or an acute one; and, finally, whether it is solitary and local or generalized. At the same time care should be taken to inquire whether the child is the only one in the house or school who suffers from it.

The most common skin lesion met with in school children is a roughening and reddening of the skin, due to the application of strong soaps. This is a mild application of dermatitis, and is usually most marked on the cheeks. It causes a little local discomfort, but is unsightly, and can generally be easily cured by some attention to the washing of the face. A superfatted soap should be used; lanoline or curd soap, both of which are moderate in price and can be obtained at any chemists, does very well. A mild dermatitis, characterized by localized reddening, which subsequently results in peeling of the skin, either in the form of thin scales and shreds, or, where the irritation has been great, in larger pieces, is due to the application of heat. Children who have been exposed to the sun after bathing in the sea or in a river sometimes develop a bad dermatitis on their backs and thighs; the skin is reddened, and smarts, and may even show vesicles or tiny blebs here and there. A mild antiseptic and soothing ointment generally suffice to cure the case.

The second most common skin disorder is undoubtedly impetigo. This consists in papular, pustular lesions which are caused by direct infection of surface portions of the skin, which the child has scratched in an attempt to relieve itself of the itching caused by vermin or some slight local lesion. Impetigo is essentially a dirt disease, and where it is seen there is generally to be discovered some cause for it. The nurse should try and find out what this cause is, whether vermin or something else. The so-called impetigo contagiosa is a definitely contagious disease, which is not, however, commonly seen in schools. In this form crops of vesicles appear on various parts of the body; these become pustular and cause some itching. The child scratches itself and transfers the septic matter to other parts of the body, where it sets up similar lesions. The pustules and the resultant scabs are most commonly seen on the face and hands, and may give rise to ulceration, which is very chronic and which may leave bad scars. A case of impetigo should be referred to the doctor, and care should be taken that the child does not infect its school-mates. Such children are usually poorly nourished, and in want of good food and tonic medicines.

In some children a seborrhœic dermatitis occurs. This is a functional disease of the sweat glands, which produce an excess of oily secretion. It is a painless, non-irritating condition, which is best seen on the scalp, where it forms the oily scales known as dandruff. The condition is to some extent contagious, and children with dandruff should not use the same combs and brushes as other children. The treatment is a matter for the doctor. All that the nurse can do is to insist on cleanliness and proper attention to the hair, and to take care that other children are not infected.

Severer forms of dermatitis and impetigo are set up by the bites of vermin. Of these the most common is the dermatitis produced by lice. There are three varieties of lice that invest the human body—the head

louse (*Pediculus capitis*), the body louse (*P. corporis*), and the crab louse (*P. pubis*). All or any of these may be found on school children, though the first and second are much the most common varieties met with. They all give rise to irritation, which, owing to the scratching, with which the child tries to relieve the itching, leads to abrasions of the skin, subsequent infection, and the formation of impetiginous patches or pustules. Essentially a condition due to dirt and want of attention to the rules of hygiene, it may sometimes be due to direct contact, and the presence of lice on the body or in the clothes of a child should not be taken as conclusive evidence of dirtiness. The nurse who has much to do with dirty children will find it no easy task, sometimes, to keep herself free from these vermin, and only constant attention and care will enable her to do so. It must therefore not be imagined that the average school child, who sits alongside dirty children who are louse infected, can keep itself clean without similar attention and care. For that reason the presence of a verminous child in a class is a source of danger and worry to everyone else, and such a child ought to be excluded until it is no longer a focus of infection. By the Children's Act of 1908 the parents of children found to be verminous may be required to have their children properly cleansed within twenty-four hours after receiving notice from the school doctor; in default of such cleansing the school authority may take the matter into its own hands, and the parent is liable to a fine of ten shillings on summary conviction. The nurse is ordered, by most education authorities, to report cases of verminous children to the parents on special notice cards (which must be sent in sealed envelopes). These cards give simple directions. For example, that sent out by the London County Council gives the following hints: "The child's clothing being removed should be placed for ten minutes in boiling water or exposed to steam at the same temperature, and then thoroughly dried

and brushed ; in the meantime the child should be well washed all over with soft soap and water, and then given a hot bath ; by these means the vermin and their eggs will be destroyed."

The head louse is a tiny, flattened animal, with six legs, which are attached to the middle segment or body, and a long hind segment or abdomen. The legs terminate in one or two long claws, and the front of the head is armed with little barbed hooklets. The body louse is somewhat larger, with a slightly longer abdomen, which consists of eight segments and a triangular shaped head. These little insects have no definite colour ; their tint apparently varies according to the hue of the skin of the individual whom they infest, and lice, on a dark complexioned child, are generally much darker in colour than those found on a child with fair or ruddy complexion. In all three species the female is larger than the male. The female lays from sixty to seventy eggs, which hatch out in about a week's time, and which are known as nits. In the head louse the eggs, which are little oval, whitish bodies, are fixed by their narrower end to the hairs. In the body louse the eggs are deposited in the seams of the clothes ; in the crab louse, which is much the rarest of the three, they are attached to the pubic hairs, the axillary hairs, or, in children, to the eyebrows. The diagnosis of pediculosis is generally easily made. When a child is found suffering from itching irritation, which causes it to scratch itself frequently, a hunt should always be made to find out whether there are any lice on the body. The head and the seams of the clothing should be carefully scrutinized, and if the insects are present they are usually easily spotted. The treatment is, on the whole, easy. For the head louse the hair on the scalp should be cut close. This is imperative in most cases, and although some parents strongly object to this preliminary, the nurse should explain that it entails no permanent disfigurement ; the hair always grows, and

the operation is necessary in order to clean the scalp properly. Where the nurse can herself attend to the treatment the best thing is to rub sassafras oil into the scalp. In slight cases combing the hair and rubbing in a dilute solution of lysol is very effective both to destroy the lice and to get rid of the nits. A pennyworth of lysol, which can be bought at any chemist—diluted with a liberal supply of water—is ample for most purposes. Paraffin oil, which is ordinarily recommended, is not so good; it always leaves a smell, and it does not always answer, while the risk attached to its use outweighs its advantages. Some nurses find warm vinegar is very effective. Others, again, prefer staphysagria ointment. The body louse is more easily dealt with, but it is difficult to ensure cleanliness in such cases. The body should be lightly rubbed with sassafras oil or with staphysagria ointment, both of which kill the insects, and the clothes must be thoroughly cleaned by baking. In most cases radical measures at the beginning are most effective. Once the child is free from the vermin ordinary care and attention will prevent it from getting reinfected. Where there is much irritation due to scratching, soothing lotions or emollient ointments should be employed; boracic ointment or lanoline is generally sufficient. In the worst cases medical advice must be sought. The children are often weak and badly nourished, and the nurse should see that they get tonic treatment when required.

Fleas.—Fleas are the most common sources of irritation in school children, and it is relatively hard, in a poor class school, to find a child who is not marked with flea bites. These appear either as fresh bites, in the shape of wheals, which itch, or as old bites, when they are tiny petechiæ (macules, that is, of which the colour cannot be dispersed by pressure with the fingers, as it is due to extravasated blood). Sometimes a child may be found with the greater portion of its back and

breast covered with these spots and with some impetigo, as the result of the scratching to allay the irritation. Very little can be done in the way of treatment. The bumps usually subside, and only a little discoloration is left. Much, however, may be done to keep the children free from fleas, and cleanliness here, as elsewhere, will yield the best results. Some people are hardly ever attacked by the insects, and epileptic children are said to be immune to their bites, but little reliance can be placed on these statements. The application of ammonia to the bitten spot will generally allay the itching; a few drops of chloroform on the spot will kill the flea if it is still sucking the blood. The nurse will find some inconvenience from these little pests if her work lies among the poorer children, and there is no reliable safeguard against them. Camphor carried in the pocket of the skirt, a few drops of oil of wintergreen scattered on the clothing, and washing with coal tar soap have been recommended by way of prophylaxis, but all these precautions will be found unsatisfactory. The only certain way is to pounce on the flea when it is seen or felt and summarily kill it.

Scabies.—This disease is caused by a mite or acarus, which is armed in front with little nipple-shaped processes, by which it bores its way into the skin in an irregular line, forming a burrow, in which the female deposits her eggs. The male does not burrow, but hides in the crevices of the skin, and may sometimes be spotted when the child is examined. The eggs are buried underneath the skin, where they hatch, and the results of infection are to be seen in the shape of impetigo, dermatitis, and acute irritation, which may be localized, or in bad cases generalized. There may be little vesicles or pustules, and owing to the scratching scabs and impetiginous crusts. The characteristic burrows are mostly found on the hands between the fingers, on the shoulders, and on the buttocks. The disease is very contagious, and should be promptly

attended to. The child should be excluded from school, and the nurse should see that the treatment prescribed is properly carried out. This treatment consists in anointing the body with sulphur ointment or storax, and usually quickly puts an end to the disease if properly carried out. A fortnight's absence from school is all that is required, but care should be taken to examine the children thoroughly before they are allowed to resume their places in class.

Favus is a rare disease, which only occurs in slum children. It is one of the ringworm class of infections, characterized by a peculiar yellow crust, with a depressed centre, which usually appears on the scalp. The hair is loosened underneath these crusts and falls out, and the nails may also be affected. The disease is very contagious, and no time should be lost in treating it. The child should be promptly excluded. The treatment is difficult, and nowadays the X rays are mainly relied on. Favus cases are essentially suitable for hospital treatment.

Ringworm.—Ringworm occurs in two forms—the so-called “tinea versicolor,” which is an affection of the body, easily curable, and the ordinary ringworm, which usually attacks the head, though it may also be found on the body. Both varieties are contagious, but the second much more so than the first. Both are produced by a specific fungus, and the definite diagnosis depends on finding the spores of this fungus by microscopical examination. Tinea versicolor consists of small circular spots, yellow in colour, and covered with a few whitish scales, while the margins are slightly raised. These spots slowly extend, and cause some slight itching. They are only found on parts of the body covered by the clothing, and the application of a mild boracic lotion is usually sufficient to cure them. Children infected with this condition need not be excluded provided the affection is under treatment.

Ordinary ringworm is much more serious, especially

when it attacks the scalp. There are several varieties of the disease. *Tinea circinata*, which attacks the body, is a slowly spreading disease, characterized by the formation of circular patches of a reddish-yellow colour, which, like *tinea versicolor*, tend to spread by extension. The centre of these patches is usually covered with fine whitish scales. The disease is easily cured by the application of mercury ointment or a solution of iodine applied to the patches, and it is not always necessary to exclude the children affected. Ringworm of the scalp needs much more energetic treatment, and the child must be excluded, since the proper treatment is by means of the X rays, and since the disease is very contagious among children. It is hardly ever seen in adults, but may spread rapidly in a school, especially when the children use the same brushes and towels. The characteristic ringworm patch appears on the scalp as a little area of surface whereon the hair is thinned. The scalp itself is reddened and covered with thin, scaly debris, among which are to be seen stumps of the hairs. The hair itself is brittle at the spot where the fungus has attacked it, and there may be little crusts on the margin of the patch or in its centre, formed by dried masses of fatty secretion. The disease is obstinate, and unless treated lasts for years, attacking more and more of the scalp, so that it may eventually lead to baldness of the whole scalp; usually it abates when the child reaches puberty, but it produces unsightly disfigurement, and the condition is a highly infectious one. The treatment consists in depilation of the affected area by the X rays, and the application of suitable parasitocides or substances that destroy the fungus. Merely painting the spot with iodine is not of much use, though the use of strong formaline has been found to produce a cure. The best method of treatment is undoubtedly by means of the X rays, and children with ringworm of the scalp are usually sent to a hospital. In every suspected case of the disease the

nurse should carefully pick out a few stumps over the patch and enclose them in a clean envelope for proper bacteriological examination. When the child returns to school after treatment a few of the hairs surrounding the bald patch should be extracted and similarly examined to see if the fungus has been destroyed. Unless there is an entire absence of fungus spores the child should not be allowed to re-enter the class.

Some children present large bald spots on their heads, which may be surrounded with a few stumpy hairs. This is the condition known as alopecia, and there is some evidence to show that it is contagious and due to a specific fungus, but in the majority of cases the ordinary treatment for ringworm does not cure the affection, and no fungus spores can be detected on the stumps. In every case of baldness the nurse should collect a few stumps for examination, but alopecia is usually easily distinguished, with a little care, from ordinary ringworm, since the centre of the patch is always quite bare, whereas in ringworm it is usually covered with stumps of hair. Congenital syphilis, and some other conditions, may cause baldness in children. The treatment must be left to the doctor, who will also make the diagnosis.

Acne, or blackheads, is a very common disease in children, and is due to the blocking of the sebaceous follicles of the skin, which results in the formation of a small papule or pustule with some inflammation at its base. This forms the characteristic pimple in acne cases. In the slighter degrees there is merely a little distension of the follicle with some fatty material, the opening of the follicle itself being blocked with dirt, which forms the little black spot in the centre of the elevation—the blackhead. The disease is not contagious, but is very often obstinate to treatment, though in some cases it is easily cured by attention to diet. Medical treatment should be sought, for the ordinary home remedies used are of very little avail.

Anomalies of secretion of the skin, leading to excessive sweating of the hands and feet, or to great dryness of the skin generally, are usually due to impaired general health, and tonic treatment is required in these cases. Where excessive sweating is observed, the children sometimes suffer from a sweat rash, which may cause slight itching. Sweating of the feet is of considerable importance in children, as it leads to various skin affections of the foot. It is easily cured, in most cases, by attention to cleanliness and the use of a dusting powder, which is sprinkled inside the stocking, made of equal parts of boracic acid, starch, zinc oxide, and salicylic acid. Corns and blistered feet must be treated before this powder is used.

Warts, thickenings of the skin, discoloration, and corns are usually easily dealt with in children. The importance of good boots, which neither press on the toes nor distort the foot into an uneasy position, has already been mentioned; some attention to this point will generally suffice to get rid of corns. Bunions must be medically treated. Warts are removable by frequently bathing the part in hot salt and water—Tidman's sea-salt being, perhaps, the best to use. Where they resist this simple treatment, they must be removed with caustics, but in such cases the school doctor will give the necessary instructions. There are several skin diseases, of infrequent occurrence, which lead ultimately to a thickening of the skin, or an induration as it is technically called, but they are not very common in children, and when they occur the school doctor will generally deal with the case. *Molluscum contagiosum* is a condition in which there are small tumourlike growths of skin on the neck, face, back, or limbs. It is not directly contagious, and is quite a painless disease. The treatment consists in removing the small tumours when they are unsightly, but, as they tend to recur and the condition is not a serious one, very little active treatment is really required. Skin tumours, which are

muscle-tissue tumours, fibrous, or nervous in origin, and the now rare condition known as keloid, which is generally seen on a scar or burn, or where there has been much irritation, are sometimes met with in children ; their treatment is usually by operation, where it is necessary to treat them at all.

Various papular eruptions are seen in children. Of these the chief are lichen ruber, prurigo, urticaria, and erythema multiforme. Lichen ruber is a condition, characterized by the presence of flat raised patches of a livid red colour, usually first seen on the wrists and fore-arms, and accompanied in old cases with some induration of the skin over the affected area. The disease is chronic, and the children need medical treatment, but the condition is not contagious. Prurigo is a papular rash, usually located on the legs, arms, and front of the chest, and accompanied with violent itching, which causes the child to scratch itself, and which may lead it to be suspected of being vermin-infested. It is a chronic condition, which tends to recur, and the treatment is medical, and needs great care and perseverance on the part of the parents ; there is no evidence that the disease is directly contagious. Urticaria, or nettle-rash, is due to poisons, either applied locally (as in a sting of a nettle, the bite of an insect, etc.), or circulating in the blood ; in the latter case they are usually derived from something eaten, and some children invariably get an urticaria after consuming shell-fish, indigestible meat, or asparagus. There are several varieties of the disease, but in nearly every one the condition is easily recognized by the wheals which form on the surface of the skin. Where the nettle-rash is actually present, the child's skin is usually very "irritable" ; if the finger is drawn over the surface of the chest with slight pressure, a red line is left, which in some instances may be a prominent wheal. The condition is not contagious, and is usually very amenable to medical treatment, which must aim at removing or neu-

tralizing the poison which is the cause of the disease.

Conditions in which there is a vesicular eruption are not uncommon. *Pemphigus*, in which the vesicles are relatively large blebs, and in which the child is more or less ill, is rare. *Herpes*, or *shingles*, on the other hand, is relatively common, especially in autumn and spring. The characteristic vesicular eruption, which is arranged in lines that follow the distribution of the cutaneous nerves, is usually preceded by great pain, which may lead to the suspicion of pleurisy or pneumonia, as it is nearly always in the chest wall. When the vesicles appear, the constitutional disturbance subsides, but the irritation and pain may still be great. Shingles is not a very important disease in children, but if badly treated, may cause scarring. Medical treatment is necessary, and the child should be sent home. Herpes of the lips is not usually an independent condition, but is a complication in many acute fevers, such as scarlet and pneumonia and diphtheria.

Eczema is a condition of superficial inflammation of the skin, in which there is commonly an eruption of tiny vesicles, which burst, discharge the fluid that they contain, and produce localized abrasions from which a thin serous discharge oozes. It is usually easily cured with proper treatment in children; if neglected, it may become chronic, and give rise to a great deal of trouble. Its cause is not definitely known, but it is probably due to a specific organism, though some varieties are undoubtedly set up by local irritation. In slight cases soothing applications are all that is necessary, and the child may continue to attend school. In bad cases medical treatment must be sought. Eczema may occur on all parts of the body; in school children it seems to be most common on the lobes of the ears, on the arms, and on the chest.

Pityriasis is a superficial inflammation of the skin, which is characterized by the thin, dandruffy peeling

which takes place over the affected area. One variety, which is not uncommon in children during the spring months, is the so-called pityriasis rosea, in which small round or oval spots of a rose-red colour appear on the chest and arms. These spots gradually fade in the centre, and a cursory examination may confound them with tinea circinata spots. The disease usually subsides after a few weeks. It is apparently not contagious, and all the treatment required is a soothing ointment. The other variety known as *pityriasis rubra pilaris*, is quite different, and is probably quite another disease. In this condition a papular rash, sparsely scattered on the arms and legs, appears, each papule with a hair in its centre as it is formed round a hair follicle. The papules may become very numerous, and lead to hardening and fissuring of the skin, so that afterwards an impetiginous condition is set up. The child should be referred to the doctor.

Erythema multiforme has already been mentioned. It is a condition in which papules of varying size, ranging from a pin's head to a lump as large as a half-crown piece, appear on the legs and arms. There is generally some swelling and local redness round these papules, and the child may complain of slight pains. These spots never become abscesses; the inflammation subsides in the course of a few days, but the child is very liable to have relapses. The condition is supposed to be associated with rheumatism, and whenever it is noticed, the child should be reported to the doctor for medical inspection, since it is sometimes not easy to distinguish the disease from local abscesses or actual inflammation of the bone—conditions which are much more grave than erythema multiforme.

The number and variety of skin diseases are very great, and the school nurse may be aghast at this simple enumeration of the few more commonly occurring ones. There is no necessity, however, to attempt an exact diagnosis—which is often extremely difficult—in every

case. All that is wanted of the nurse is to be able to detect a condition which calls for medical examination and treatment, and to be able to distinguish the graver conditions, such as ringworm, the acute rashes of fevers, the verminous types from the others which are less grave, and in which the diagnosis is a matter of medical interest merely. The lesions of the skin associated with tubercle and syphilis have already been dealt with, and all that remains to be said is that, if the nurse, in any case, has the slightest doubt about the diagnosis of a skin rash, she should report the case to the doctor for full examination.

CHAPTER VIII

DISEASES OF THE HEART AND LUNGS

WHILE these conditions, the majority of which are very serious, are matters for the school doctor, it is necessary that the school nurse should know something about them, in order to be able to explain their importance, when necessary, to the parents who have not attended the inspection at the school.

Heart disease among children may be of various forms, but the main type is the chronic disease of the heart, which is due to some valvular lesion. It will be remembered that the heart, roughly speaking, consists of four cavities, divided by intervening walls, or septa, in which are passages for the flow of blood from one chamber into another. The two upper cavities are known as the auricles, the two lower as the ventricles, of the heart. The median septum divides the heart into a right and a left compartment, each of which is again subdivided into a right auricle and ventricle, and a left auricle and ventricle. The right auricle communicates with the right ventricle by an opening which is guarded by a valve with two flaps, so arranged that normally the blood can only pass from the auricle into the ventricle, and not in a reverse way. This valve is known as the tricuspid valve. The opening between the left auricle and ventricle is guarded by a two-flapped valve, which is called the mitral, from its presumed resemblance to a bishop's mitre, and which also only allows the blood to flow from auricle to ventricle. The venous blood is

sent by the great veins of the trunk and extremities into the right auricle; from there it passes through the tricuspid valve into the right ventricle, whence it is carried by the pulmonary artery to the lungs. Here it is aerated and passed on through the pulmonary vein into the left auricle, through the mitral valve into the left ventricle, and from there through the aorta to the head, trunk, and extremities. The right side of the heart is thus destined for the venous blood; the left for the arterial. The orifices of the vessels which open into the ventricles are guarded by valves, which are known as the semilunar, and which prevent the blood from regurgitating or passing back from these great vessels into the ventricles. The valves which guard the entrance to the pulmonary artery are known as the pulmonary semilunar valves; those guarding the opening of the aorta as the aortic semilunar valves. There are thus four sets of valves in the heart: the tricuspid, between the right auricle and right ventricle; the mitral, between the left auricle and ventricle; the aortic, at the aortic opening in the left ventricle; and the pulmonary, at the opening of the pulmonary artery in the right ventricle. When through disease or other cause these valves are defective, so as to allow the blood to regurgitate or pass back into the cavity of the heart whence it has been pressed out by the contraction of the muscular walls of the heart, we get a condition known as valvular disease of the heart, or, briefly, a valvular lesion.

The course of the blood through the heart is not, however, the same in the child before birth as it is after birth. In the infant in utero a portion of the blood brought into the right auricle passes directly into the left auricle, through an opening in the median wall between the two auricles, which is called the "foramen ovale," and which is guarded by a special valve called the Eustachian valve. When the child is born, and the blood begins to circulate through its lungs, this opening contracts and quickly closes. It may, however, persist,

in which case we get a condition known as congenital heart lesion. Children with congenital disease of the heart, however, are unlikely to fall under the school nurse's observation, and there is no need to deal further with the condition here, beyond stating that in young infants who attend the infant classes, such a condition is sometimes found. The child is generally pale, with bluish lips and blue finger-tips. It is unable to do any exercise without getting out of breath, and its condition is generally such that it soon attracts the teacher's attention, with the result that it is brought to the doctor.

A valvular lesion in a child is always the result of disease of the heart—with the exception, of course, of the congenital condition already referred to. The most common cause is probably rheumatic fever, but all the specific fevers may cause heart disease through an acute inflammation of the lining membrane of the heart, which results in injury to the valves. In ordinary cases, the disease is only established by the doctor on listening to the sounds of the heart. Every valvular lesion causes an alteration in the normal sounds heard on listening with a stethoscope over the heart, but as the diagnosis of these bruits or murmurs is solely a matter for the doctor, it is not necessary to go into them here. In those cases where the lesion is only found out on auscultation, the child is comparatively fit and well; only a little breathlessness after exertion may show that everything is not normal. In some cases, particularly when the mitral valve is smaller than usual (a condition technically known as mitral stenosis), the child may be very pale; paleness is also a sign in cases where the aortic valve is diseased. Additional signs of heart disease, due to valvular lesions, are blueness of the lips and of the white of the eyeball, a red flush on the upper part of the cheeks, with an unusually white forehead—the so-called “mitral flush”—an alteration in the beat of the pulse, and the breathlessness

already mentioned. When no other signs are present, it shows that the heart is still doing its work efficiently. It has more work to do, and nature, in attempting to deal with the strain thrown on the heart by the unsoundness of the valves which are not quite capable of performing their office, arranges for such strain by increasing the muscular power of the organ. Its walls enlarge, and a condition of hypertrophy is set up. This is, of course, only to be found out definitely by examination ; but whenever the child with a valvular lesion presents no other symptoms or signs than those already enumerated, even when it does school-work, takes part in games, and leads an ordinarily active life, it is presumptive evidence that such hypertrophy exists, and that nature is trying to do her best to remedy the defect. The heart lesion is then said to be compensated, and so long as such compensation lasts, the child will be fit and well. The majority of cases of valvular lesion met with in school children are compensated. When the parents attend the examination, the doctor will explain all this to them. When they do not, it is the duty of the nurse, when she takes the advice notice, to tell them, simply and clearly, what is the matter. Most people have a great dread of the word "heart disease." They imagine that, if a child has heart disease, it is doomed. As a matter of fact, a child with compensated heart disease may live to a ripe old age, provided the parents take care of it during its youth, and it is instructed how to take care of itself when it grows older ; indeed, with care such a child is likely to live longer than another who, having no heart disease in youth, develops a valvular lesion later in life, and does not know of it, with the result that nothing is done to guard it against the compensation failing.

All that is necessary in a case of compensated heart lesion is to tell the parents that the child suffers from a condition of its heart which, if properly treated, will not directly endanger its life in the majority of cases.

The exception to this rule is cases of aortic diseases, in which sudden death may occur through slight strain or shock thrown upon the heart ; but in such cases the nurse will receive her instructions from the doctor, and there is therefore no need to discuss them here. Above all, it is necessary not to alarm the parents unduly. Tell them that the child needs more care than an ordinary healthy child, and that special attention should be paid to slight ailments ; that nothing should be neglected or deemed too trivial, because any extra strain thrown on the heart which has already to do more than its fair share of work, is liable to upset the compensation, and lead to graver symptoms. A plain, simple diet, light, warm clothing, and a moderately active life, are all that are essential in the majority of cases. The child should not be permitted to indulge in strenuous games. At the same time, ordinary play in the playground, when supervised by a teacher, is not likely to do harm. If there is a risk in continuing such games, the doctor will probably lay special stress on the fact in giving instructions with the advice card. No medicine or special medical treatment is necessary ; but, of course, if there be anæmia or some concomitant defect that demands treatment, it is highly necessary that it should be attended to. Nothing that we know of in the way of medicine will cure the valvular lesion ; all that can be done is to strengthen and support the compensation, and a simple, healthy mode of life, with the avoidance of all excess, and due care when any ailment arises, is all that is required. A little stress laid on these points will reassure the parents. When the child grows older, it must be instructed to take care of itself. At puberty, there are special risks, both in boys and girls, which may be pointed out to the parents, and when the child leaves school, it should be seen and re-examined by the doctor, who will advise it with regard to future care, kind of work, and mode of life generally.

If these precautions are not observed, there is a danger that the compensation of the heart may fail. In that case other symptoms will show themselves, all of them due to the failure of the heart to cope with the strain thrown upon it. If the child, for instance, indulges in violent exercises and games, or has to do hard manual labour, more blood is sent to the heart, and the heart muscle must be strengthened proportionately to deal with this extra work. But there are limits to everything, and even nature, ingenious as she is, cannot go on coping with overtime work. The result is, that the muscle grows weak, just as the blacksmith's biceps by overwork gets smaller in course of time. The thin walls dilate, and the stagnating blood in the cavities presses upon the column of blood returning to the heart. In such a case we get what are known as back pressure symptoms. The legs and extremities swell, and a condition of dropsy sets in ; the strain thrown on the kidneys weakens and injures them, and they cannot do their work properly ; the lungs are engorged with blood, and the child gets out of breath on the slightest exertion, so much so, that in bad cases it cannot sleep lying down, but must be propped up into a sitting position. When any of these symptoms—the initial one of which is usually swelling of the feet, especially round the ankles, so that the mother states that the child's ankles are puffy at night—are observed, it is a sign that the compensation is failing, and rest, more or less complete, is urgently called for. Such a child should not be allowed to attend school, but should have prompt medical treatment. When taken in time, the compensation may be re-established, but once it has failed, the case is a serious one, and special instruction should be given to the parents so as to guard against any recurrence. Nothing can be more pitiable than the condition of a child with valvular defect, who, through want of proper care, has been allowed to overstrain its heart. Such a child has a poor chance of growing to

adult life, and in the majority of cases, especially where poor children are concerned, it is a wreck which constitutes a burden to itself and its parents. All this can be avoided by taking proper precautions in the early stages, and it is well for the school nurse, when interviewing parents whose children have valvular lesions, to lay stress on the importance of exercising such care from the commencement.

With the other diseases of the heart, the acute and sub-acute inflammations, and the dilatation which results from strain—the heart strain to which children are particularly subject—and with the rarer conditions sometimes met with, it is unnecessary to deal here, as they fall much more within the province of the school doctor than within that of the nurse. When they are met with, the doctor will explain them to the parent or nurse, and will give the necessary advice with regard to care and the need for seeking medical treatment.

Diseases of the lungs may be briefly dealt with. Pulmonary consumption or phthisis, which is uncommon among school children, is sufficiently important to demand special description, and is accordingly dealt with in a separate chapter. The other conditions we have now to refer to are such lesions as bronchitis, emphysema, pneumonia, pleurisy, and asthma, with any of which the school nurse may meet in the course of her work.

Bronchitis is, properly speaking, an inflammation of the bronchi, or air tubes. The suffix “*itis*” does not mean inflammation; it merely means “of,” as it is the genitive termination of a Greek word. The word *dolos*, or “disease,” is understood whenever we speak of something terminating in “*itis*.” Usually, however, we mean an inflammatory disease. Thus appendicitis is understood to be inflammation of the vermiform appendix; encephalitis, inflammation of the brain; bronchitis, inflammation of the bronchi, and so on. By bronchitis is meant a condition of acute or chronic

inflammation of the air tubes, which is characterised by a catarrhal or purulent discharge, which is hawked or coughed up, and known as sputum. It may result from various causes, and the acute form is either an independent disease, or merely a symptom in a general disease, such as an acute fever. For example, in measles the attack usually sets in with a slight bronchitis ; so, too, often in scarlet fever and in glandular fever. The symptoms are sufficiently well known to every nurse to need no description here. The acute type is accompanied by a slight rise of temperature and general malaise ; soon cough comes on, and the child spits up quantities of white phlegm, which gradually change into yellow, as the discharge becomes purulent. There is a characteristic wheezing in the chest, which may be felt when the hand is placed over the child's breast, and when it inspires or expires. These noises are known as rhonchi, and are caused by the air travelling through the inflamed and congested air-tubes. When the disease has been allowed to become chronic, there is usually no fever, but there are still cough, which may be very distressing, and the spitting up of purulent muco-phlegm. The disease may advance further, and give rise to an even more intractable chronic condition, which mimics consumption, and which is known as bronchiectasis. In this condition the smaller bronchi are enlarged, and form little cavities containing pus, which set up a chronic inflammation in the lung. From time to time the child coughs up exceedingly foul smelling bits of phlegm, and its general condition becomes very bad. It wastes and grows pale and sallow-looking, and the parents may explain to the nurse that it is consumptive. Bronchiectasis is exceedingly difficult to cure if the child is allowed to remain at school and continue its ordinary life, and no case of ordinary bronchitis should be neglected owing to the risk that it may become chronic. Under proper treatment an ordinary case of bronchitis is very amenable

to treatment, and the parents should be urged to seek medical aid, and to carry out the doctor's instructions properly.

Emphysema is a condition of dilatation of the air vesicles of the lung, which is usually the result of repeated attacks of bronchitis. It is particularly common in weak, ill-nourished, rickety children. Such children have an unusually large chest for their age, a capacious, rounded shape of chest which is called the "barrel-shaped chest." They may have a little cough, and may suffer much from breathlessness on exertion, while they are always more liable to colds than other children. The condition is to be suspected in a child who has a chest of the description mentioned, and who is subject to colds and coughs. The diagnosis is made by auscultation. The condition is incurable, but much may be done to render the child stronger and more capable to resist the attacks of disease, by proper care and attention to simple hygienic rules.

Bronchitis may lead to an inflammation of the lung tissue, which is called *pneumonia*. This inflammation is usually, however, the result of a specific micro-organism, which is exceedingly common, but which, under conditions not yet perfectly understood, attacks the lung tissue, and gives rise to a definite disease. Pneumonia is an exceedingly grave and dangerous affection in children, and should be treated promptly. The disease is ushered in usually by a convulsion, or, in rarer cases, by a shivering fit. As a general rule, children do not get shivering fits; the ordinary rigor with them is usually replaced by a fit of convulsions. The temperature rapidly rises, the child becomes extremely unwell, and may become delirious; little blebs form on the lips and round the mouth, which are known as herpes. There is cough and an attendant bronchitis, though in many cases these additional symptoms may be absent. It must always be remembered that young children do not spit up their phlegm, but usually swallow it.

and so the characteristic sputum which is described in cases of pneumonia may not be seen. The disease is, of course, highly acute, and the definite diagnosis is made by the doctor, who, on listening to the child's chest, finds evidence of solid lung—that is, a patch of lung into which no air enters owing to the fact that the air vesicles are choked up with mucus and inflammatory products. The child should be put to bed, and medical advice sought as soon as possible. The complications of pneumonia are exceedingly grave, and as has already been said, the disease is a highly dangerous one. With its treatment the nurse has nothing to do, but it is well for her to impress on the parents the necessity for giving the child fresh air, and for securing proper nursing.

Pleurisy is a condition in which there is inflammation of the pleura or serous membrane that covers the lungs and the inside of the chest wall. It may be either dry, in which case the doctor, on listening, discovers a rub—a friction sound made by the two surfaces of the inflamed pleura rubbing against each other at every respiration—or it may be exudative, in which case the space between the two serous walls is filled with fluid excreted by the inflamed parts. When this fluid becomes purulent, it is said to be an *empyema*. The child suffering from pleurisy may be apparently well, only complaining of a slight pain in the side of the chest and of a little cough. When such is the case, the nurse should report the fact to the school doctor, and bring the child up for medical inspection. Pleurisy, like pneumonia, is a very serious condition, which must be actively treated as soon as possible, otherwise the complications may be grave. With proper treatment it is easily curable, though when an empyema has formed, an operation is necessary to evacuate the pus.

A child suffering from *asthma* is not uncommonly found in a class, though it is somewhat rare for the nurse to witness the actual attack. Asthma is a peculiar disease in which there is spasm of the smaller bronchi, or air-

tubes, so that the breathing is temporarily interfered with. Its cause is not known, but it is found in a disease met with usually in nervous children. Such children sometimes have a high degree of emphysema, and present the peculiar barrel-shaped chest already mentioned. The attack, as a rule, comes on in the night-time, but may occur during the day, and is occasioned by different causes. It is nearly always sudden, though, as in cases of epilepsy, some children may have a feeling that they are going to get an attack some time before they actually suffer from it. The child begins to wheeze, its breath comes in gasps, it goes blue in the face, and struggles for breath, clinging to any support that is at hand, just as it does in a case of whooping-cough. There is, however, no cough in the majority of cases, and if cough is present, the characteristic whooping inspiration is not heard. If the attack happens while the nurse is present, she should loosen the child's neck clothes, and take the sufferer to the window, or into the open air. Drinking water or smelling at a bottle of smelling-salts sometimes gives temporary relief, but it is best to get the child home and see that medical aid is procured. Between the attacks every care should be taken that constitutional treatment is given. The case must be referred to the school doctor, who will see if there is any irritating focus in the mouth, nose, or throat, such as septic teeth, enlarged and septic tonsils, nasal defects, or some similar condition. The removal or cure of these defects sometimes cures a case of asthma, but instructions with regard to these points will have to come from the school doctor or the child's medical attendant.

The school nurse should endeavour to find out the early signs in these cases of heart and lung trouble, so as to be able to draw the school doctor's attention to the children who suffer from them at the earliest possible opportunity. It is her duty to act as a general observer in the school with regard to the health of the children

under her supervision. The doctor can only examine such children as are brought to his notice, or those whom, in his periodical visits to the classes, he thinks are in need of treatment. The nurse, however, who sees the children more frequently, is in a better position to guard against the onset of disease, or to nip a commencing attack in the bud, if she has some acquaintance with the preliminary signs of these conditions, and knows something about their course and nature.

CHAPTER IX

THE NOSE AND THROAT

DISEASES of the nose, throat, and mouth are conveniently grouped together, so far as the school nurse is concerned. The rarer conditions met with among school children hardly need description, but it is necessary to say something about the more common conditions with which the nurse should be familiar. Although these are common, it does not follow that they are unimportant, and the nurse should bear in mind that the common, ordinary defect, which is met with every day, is the defect that needs particular attention. The rarer ones may be left to the school doctor, or to the parents who usually take care in such cases to get medical advice and treatment.

Conditions of the throat and nose may be divided, roughly, into acute and chronic. The main ones in the former class with which the nurse will have to be familiar are nasal catarrh, sore throat, and tonsillitis.

Nasal catarrh, the symptoms of which are swelling of the mucous membrane of the nose, headache, and discharge from the nose—the symptoms, in fact, of the ordinary cold in the head—is an infectious disease, which, if not properly treated, may lead to inflammation of the throat, bronchi, or even of the lungs, as the catarrh extends down into the chest. It is not caused, as people imagine, by a cold, but by certain definite organisms which set up an inflammation of the mucous membranes, which is characterized by the secretion of serous fluid,

and is technically known as a catarrh. It is well to bear in mind that, although this condition sometimes stands alone, it is very often merely a symptom of a more general condition, such as an acute attack of infectious disease. Many of the exanthemata—that is, acute fevers which are characterized by the appearance of a rash—set in with a nasal catarrh; the most common of these is measles. In all cases of “cold in the head” the nurse should therefore examine the child, to find out whether it has any rash on its body, whether the eyes are inflamed (conjunctivitis), or whether there is a concomitant sore throat or bronchitis. (See the chapter on Infectious Diseases.)

Mild cases of the disease usually recover rapidly under appropriate treatment. Where the child can be kept at home it is best to exclude it from school, because there is always the risk that it may infect its classmates. In the majority of cases, owing to the fact that the parents regard a cold in the head as a very slight ailment, children who are excluded run about in the streets, and do not get proper attention at home, with the result that the condition gets worse, and complications set in. A cold in the head in a school child should never be neglected; the nurse should draw the doctor's attention to the patient, and act on his instructions. *Sore throats* are relatively frequent among school children, and vary from a slight laryngitis caused by cold, by surreptitious smoking by the older boys, or by other irritation, to the acute inflammation which is the result of infection by specific organisms. The symptoms complained of in a case of sore throat are pain on swallowing, which gradually gets worse, so that the child complains of pain even when the throat is at rest; headache; and a feeling of general malaise. On looking into the mouth, the throat is seen to be red and injected, the soft palate and the hinder parts may be swollen and tender when touched. The tonsils are inflamed and red, and the tongue is generally heavily

coated with a white fur. Every case of sore throat should be promptly reported to the doctor, and no slight case should be disregarded, since even a grave case of diphtheria may give rise to very slight symptoms at first. In a case of tonsillitis, the inflammation is centred round the tonsils, which may have yellow or white spots on their surface. In quinsy, the inflammation is more apparent on one side than on the other, the soft palate is much swollen, and on being touched, is acutely tender, while the slightest movement, such as any attempt to open the mouth wide, is attended with great pain.

In examining the throat of a child, the nurse should refrain from using a spatula wherever possible. All that is necessary to obtain a good view is to place the child in front of a good light, and make it bend its head backwards and open its mouth. If the tongue is very large, and is pressed back against the roof of the mouth, a spatula must be used, and in that case a thin bit of wood, which can be burned afterwards, serves excellently. On no account must a spatula used on one child be inserted into the mouth of another, unless it has been well sterilized beforehand. For that reason it is much better to use inexpensive wooden spatulas, which can be destroyed, than the ordinary metal ones, which must be boiled before they can be used again. If the examination is made at home and no wooden spatula is available, the handle of a teaspoon, which can be bent to an obtuse angle, is very serviceable. It must, of course, be cleaned after use and properly sterilized by boiling. Where the appearances on examination of the throat are such as to show that there is acute inflammation, it will usually be necessary to take a swab from the throat for purposes of bacteriological examination, to prove whether or not the case is one of diphtheria. This must be left to the medical officer, to whom all such cases must be reported on the first opportunity. If the nurse finds the appearance of the throat highly suspicious of diphtheria—if, for example,

there is a grey-white membrane on one tonsil extending upwards to the soft palate, and the doctor is not at hand—she must promptly send the child home, and advise the parents to seek medical aid at once. In that case she must follow up the case, and if it proves to be one of diphtheria, report it to the head-teacher and the doctor, who will take means to prevent the spread of infection in the school.

The treatment of a case of sore throat depends, of course, on its cause. Sometimes a sore throat, like a nasal catarrh, is merely the first sign of an acute attack of a specific fever like scarlet fever. Sometimes it is a local condition, amenable to local treatment. In every case it is a condition which demands medical treatment, for, if neglected, the consequences may be very grave.

The chronic conditions met with in the nose and the throat are familiar enough to nurses. The most common of them are *enlarged tonsils* and *adenoids*. Chronic nasal catarrh, and such conditions as *chronic inflammation of the nose*, *atrophic rhinitis*, *ozæna*, and *chronic laryngitis*, need merely be mentioned. Their proper diagnosis must be left to the doctor, and all that need be said is that when the nurse finds that a child suffers from a chronic nasal discharge, which may have an abominable smell, or from hoarseness and constant dryness of the throat, she should refer the case to the doctor for further examination.

Tonsils and *adenoids*, however, demand a somewhat more detailed description. The tonsils are masses of lymphoid tissue which lie in a little recess on each side of the throat, between what are called the anterior and posterior pillars of the fauces. Normally they project, but very slightly, beyond the limits of the recess in which they lie, and it is only when the child strains and contracts the soft palate that they come more forward, and appear as smoothly rounded masses of pink gland tissue, with a series of little holes showing on their

surface. These holes are the mouths of the tonsillar crypts, and normally only contain a little serous material. In cases of chronic enlargement, however, they may be filled with white or creamy-yellow caseating material, which may be pressed out of them in the shape of tiny little plugs of cheesy matter with an exceedingly foul smell. When there are many of these crypts filled with this material, the child's breath is foul-smelling as well, and exceedingly disagreeable. In other parts of the naso-pharynx—that is, that portion of the respiratory tract which is limited below by the epiglottis and above by the posterior openings of the nostrils—there are also masses of lymphoid tissue, which are normally small and give rise to no symptoms. In children, however, these masses may increase in size and swell, constituting the so-called adenoids. It must be remembered that adenoids, in the strict sense of the term, are normal ; it is only when this accessory ring of lymphoid or adenoid tissue in the naso-pharynx is enlarged, and gives rise to symptoms that it is necessary to treat it. When a child is said to be “ suffering from tonsils and adenoids,” it is understood that the tonsils and adenoids are enlarged to such a degree, that their removal is necessary in order to clear the air-passages, and to permit of easy respiration.

Enlargement of the adenoid tissue, which closely surrounds, as it were, the opening of the Eustachian tube which leads from the naso-pharynx to the ear on each side, and the posterior aperture of the nostrils, must inevitably cause some obstruction to breathing. The symptoms resulting from such enlargement are well known. The child breathes through its mouth instead of, as it should do normally, through its nose ; its mouth is constantly open and dry ; at night it snores, and in time the whole appearance of its face becomes altered owing to the unnatural way in which it breathes. If the obstruction is not removed, chronic inflammation is set up in the naso-pharynx. The child is prone to

"take cold," it may have headache and earache, and may finally suffer from grave ear trouble. In bad cases of adenoids there is usually some deafness, owing to the chronic catarrh set up in the tube communicating with the nose, and there is also usually some bronchitis and chronic nasal inflammation. These symptoms are sufficient to call for treatment in every case, but it must not always be imagined that such treatment is necessarily operative. Much may be done by judicious care and exercise. The tendency is for these adenoid masses to become smaller, or atrophy, as the child grows older, if proper care is taken to see that the child breathes through the nose. In examining a child for adenoids, the appearance of the face, and the fact that the child snores at night and is a mouth-breather, are usually sufficient to establish the diagnosis. It is entirely unnecessary to insert the finger into the child's mouth, and to feel the back of its throat. Such a procedure only frightens the child, and may mislead the examiner, and is, at any rate, not a method which the nurse should adopt. All that need be attempted is to try and find out the extent of the obstruction if there is obstruction. The child should be told to close its mouth firmly, and to breathe methodically through its nose. If it is able to do so, one nostril should be gently closed with the finger, and the child should be asked to breathe through the other, again with the mouth closed. Then the nostril on the other side should be tested in a similar way. If the child can breathe comfortably through either nostril while the mouth and the other nostril are closed, it means that there is no obstruction, and in such cases, unless there are other symptoms imperatively calling for treatment, an operation for the removal of the adenoids is unnecessary.

In general, it may be laid down as a rule that cases of tonsils and adenoids do not require operation unless there are definite symptoms. If there is obstruction to the breathing, if the child is habitually a mouth-

breather, if it has enlarged glands under the jaw, if it suffers periodically from sore throats, if it has a discharge from one or both ears, is slightly deaf, or has a nasal discharge, or if it has definite facial deformity as the result of adenoids, then operation is usually required, and is in all cases advisable. But when none of these symptoms can be observed, breathing exercises and attention to the hygiene of the nose and throat are sufficient.

It is always rather difficult to make parents see the importance of attending to this condition in the younger children. Most parents will not take the trouble and pains necessary to rid the child of the habit of snoring at night, nor will they follow the instructions given at the hospitals after an operation for adenoids has been done. The result is that very often the operation is followed by a recurrence. The adenoids grow again, and the symptoms which they produced at first reappear. The mother is discouraged and dissatisfied, and blames the doctor for having done the operation badly. As a matter of fact, the simple operation for the removal of adenoids is usually excellently done at most hospitals, and the indifferent results which follow it are often due to the want of care taken in carrying out the after-treatment. The nurse should make a point of explaining, in simple terms, to the parents the causes of the bad results, and should impress upon them the urgency of dealing with the cases at an early date. The sooner a case of adenoids and tonsils is taken in hand and treated, the better is the chance of improving the child's condition.

The causes of enlargement of the tonsils in children are still a matter of discussion. Chronic inflammation, the presence of sepsis in the mouth, bad teeth, discharging ears, sore heads, and enlarged glands, no doubt are factors in the causation of such enlargement, but they are certainly not the only causes. Some children, who are otherwise quite healthy, possess very

large and prominent tonsils, and are subject to frequent attacks of tonsillitis. In such cases it is probable that the enlargement of the tonsils is merely a sign of a general lymphatic over-growth, to which the vague title of lymphatism has been given. Of late years this condition has attracted much attention, owing to the fact that in some cases of sudden death in children—as, for instance, a death when under the influence of an anæsthetic—it has been found to be the only abnormal condition present at the postmortem examination. Such “lymphatic” children are usually pale and anæmic in colour, with flabby muscles, a clammy, oily skin, straight, lanky hair, and generally of the type which formerly used to be designated as scrofulous. The lymphatic glands are found enlarged throughout the body, and the thymus gland, which lies below the sternum, and which normally atrophies soon after birth, is present, and sometimes very much enlarged. There is still discussion as to the exact relationship between this condition and sudden death from apparently trivial causes, but that there is some relation between the two no one is prepared to deny, although it is probable that the importance of lymphatism has been overrated.

In many children enlargement of the tonsils, even of a fairly high degree, causes no symptoms. It is convenient to express the degree of enlargement of the tonsils by means of a simple numerical classification, and most doctors and nurses have their own classification. The most common way is probably to use the figures 1, 2, 3, and 4, to express any enlargement that may be observed. In 1 the enlargement is small, but the tonsils are not normal; in 2 it is greater, but not sufficiently great to be called bad—the medium stage, in fact; in 3 it is bad, and in 4 it is very bad. In 4 the two tonsils generally meet in the mid-line, and there is invariably a certain amount of obstruction; in the other degrees, there may be no other symptom except the enlargement visible on examination. But it is always

well to remember that it is not the size of the tonsils that is any criterion as to whether treatment is required or not. The points to be noted are whether or not the tonsils are ragged, ulcerated, with their crypts filled with caseous, foul-smelling material, and with their borders not free, but adherent to the walls of the space in which they lie, so that there is some difficulty in mapping them out from their surroundings as it were; whether the child suffers from frequent sore throats; whether it breathes through its nose or is a mouth-breather; whether there are enlarged glands under the jaw or behind the ear; whether there is a cough, earache, and aural discharge, and whether the child is anæmic, dyspeptic, and badly nourished. It is only when one or other of these symptoms are present that treatment is necessary, and when more than one sign is obvious, it is imperative that the tonsils should be seen to.

Operation is not always necessary, and it should be explained to the parents that no matter whether an operation for tonsils or adenoids is done, the main thing that matters is the after-treatment. Many parents imagine that once the tonsils are removed, the child is permanently cured. While there is, of course, no doubt that adequate removal of enlarged tonsils that have given rise to definite symptoms will very greatly improve the health of the child, it is, unfortunately, equally true that in the majority of cases such improvement is not permanent, unless the child is taught to breathe properly through its nose, and mouth-breathing is discouraged. In every case of tonsils and adenoids, breathing exercises are imperatively required both before and after operation. In some the exercises alone, if persisted in and regularly and systematically carried out, will improve the child's condition in a wonderful degree. These exercises are very simple, and can be easily mastered by every child. They are, however, tedious, and unless the children are under supervision, they will not be regularly carried out. The child is directed to stand

upright, with its feet together, and its hands clasped behind its back ; the mouth firmly closed and the head thrown back. In that position it must slowly inhale the air through the nostrils, filling its lungs to their utmost capacity, and slowly expire through the nostrils, repeating this process, which must be carried out in the open air or before a window, several times during the day. It is a good rule to interest both the parents and the children in this exercise, and to lay stress on the advisability of breathing deeply and fully when there is an opportunity of inhaling pure air, as, for instance, when in the country, crossing the bridges, on the top of a tram-car, or at the seaside. Two or three dozen times in the morning, the same number of times in the afternoon and evening, and now and then a repetition of the exercise in the playground, will usually be sufficient. The great thing is that the exercises should be methodically carried out, and that they should be persisted in. If the child snores at night, the parents should attempt to cure it of this habit—for it is in most cases where there is no actual nasal obstruction merely a habit—by waking it up and making it shut its mouth. During the day attention should be given to the state of the mouth generally ; all carious teeth should be seen to, the child should be taught how to use a tooth-brush, and should be taught also to keep its mouth shut except when it is necessary to open it for ordinary purposes. Mouth-breathing should be steadily discouraged. With a little care and attention to these details the condition of children with enlarged tonsils and adenoids can be greatly improved ; without such care, even operation usually fails to give permanently good results.

The operation itself is quite a simple one, and in the majority of cases no anæsthetic is necessary. The child lies on its back on the table in a good light, its head held by an attendant, and its arms firmly secured by another. It is best to tell the elder children that they will suffer a little pain, but when the operation is quickly and neatly

performed, it is only the scraping of the adenoids that gives rise to any marked degree of pain ; the cutting away of the tonsils by the guillotine is almost painless. If no anæsthetic is used, there is no need for the child to lie up after the operation, and the distressing headache and vomiting, often of blood swallowed immediately after the operation, are avoided. Most parents, however, will insist on their children having an anæsthetic, unless the disadvantages of such a pain-stilling aid are explained to them. When an operation for the total removal of the tonsils—the so-called “ enucleation ”—is necessary, it can be done under a local anæsthetic, though many operators prefer to give a general anæsthetic in such cases.

The school nurse can give valuable help in dealing with cases of enlarged tonsils and adenoids. Not only by pointing out to the parents the necessity for operation in cases where it is imperative that the tonsils and adenoids should be removed, but by advising them with regard to the equal necessity for breathing exercises and after care in all cases, whether with or without operation, she can assist the doctor in helping to improve the condition of such children. Here, as in most other things which concern the welfare of the school child, proper attention to the simple elementary rules of personal hygiene are of the greatest importance, and the nurse should never lose the opportunity of inculcating on both children and parents the importance of observing these rules.

In some school children *nasal obstruction* is caused through conditions in the nostril itself. The most common of these are *enlargement of the turbinals* within the nostril, or *deflection of the nasal septum* to one side. In such cases it will be noticed that the child cannot breath with its mouth, and one nostril closed ; it may take a few breaths, but it draws in insufficient air, and has to open its mouth in order to get the necessary air to oxygenate its blood. Enlargement of the turbinals may be due to a temporary engorgement of the mucous membranes caused by catarrh

or to an actual hypertrophy resulting from chronic catarrh. Deflection of the septum, which may arise from various causes, and which may be congenital, may reach a high degree of severity, so that one nostril is completely blocked. The child should be seen by a doctor, since the treatment of both conditions is surgical.

One or two other conditions may sometimes call for attention on the part of the nurse. The younger children may push beans, marbles, bits of pencil, or other foreign bodies into their nostrils, with the result that these get impacted there, and cause inflammation. With a little care and trouble, it is usually easy to remove such an impacted body from the nostrils. If it is firmly fixed, however, no attempt should be made to extract it, but the child should be sent to a doctor or a hospital for proper treatment. Syringing through the other nostril, so that the returning stream of water may drive the foreign body out by exerting pressure from behind, is not to be recommended at school. It is an excellent method, but a strong syringe is wanted, and an assistant is needed to hold the child's head firmly. It is essentially an operation for the medical man.

Bleeding from the nose, or *epistaxis*, is fairly common among school children. It may be caused by various conditions, and may be the precursor of an attack of one of the infectious diseases, or may be a sign of kidney trouble, or of heart disease. Every case of nose-bleeding should therefore be referred to the doctor for examination. Its immediate treatment, in slight cases, consists in putting the child on its back, keeping it quiet, and applying cold to the base of the nose. A piece of ice placed on the bridge of the nose, between the eyebrows, is sometimes very efficient, and ice-cold water may be snuffed up the nostrils. When the bleeding does not stop under simple treatment, the child should be seen by the school doctor, or sent to the nearest place where it can obtain efficient medical aid. No attempt should be made to plug the nostrils or to apply strong styptics.

CHAPTER X

EYES AND EARS

AMONG the many conditions with which the school nurse will meet during her work at the schools, few are more important than those which affect the eyes and ears of the children. The gravity of discharging ears and near-sightedness is now generally realized by the teaching and medical professions ; the public at large, unfortunately, has not yet grasped the significance of these lesions. Merely the briefest outline of the main facts can be given in this chapter, but too much stress cannot be laid on the necessity for paying careful attention to any defects of hearing or vision which present themselves. Treated early, many of these conditions are fairly easily curable ; left to themselves and neglected, they are bound to go from bad to worse, and may cause considerable trouble later on when the child leaves school and has to work for its living.

During the last half century a great deal of attention has been paid to the vision of school children by many observers, and we have now got fairly reliable data which show the prevalence of certain defects, especially near-sightedness and long-sightedness. It is not necessary here to enter into any elaborate details regarding these defects, but the nurse should be familiar with the broad outlines of each, so as to be able to explain, in simple terms, what they mean when questioned by the parents. The normal eye consists of several parts which have received distinctive names, and the defects

met with are arranged according to the part in which they occur. The diagrammatic presentation of the eyeball given below will serve to illustrate the simple anatomy of the eye. The outer coat of the eyeball is the sclerotic, which envelopes about five-sixths of the ball and which is continued in front with the transparent cornea forming the remaining one-sixth of the globe. Inside the sclerotic is the choroid, in which the delicate bloodvessels run, and within this is the retina of sensitive membrane on which the image of whatever is

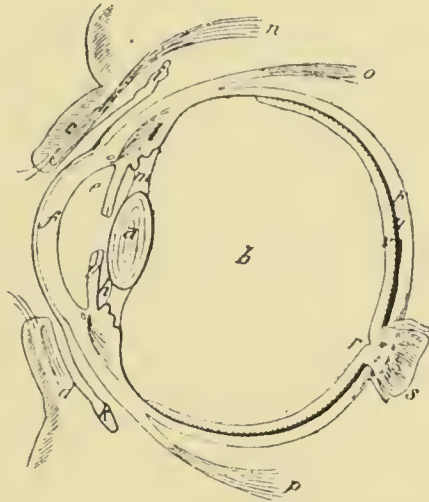


FIG. 1.—DIAGRAMMATIC EYEBALL, SHOWING PARTS.

a, Lens; *b*, vitreous; *c*, *d*, upper and lower eyelids; *e*, anterior chamber; *f*, cornea; *g*, iris; *h*, posterior chamber; *j*, *k*, reflection of conjunctivæ; *l*, ciliary muscle; *m*, suspensory ligament of lens; *n*, *o*, *p*, extrinsic muscles; *r*, retina; *s*, optic nerve and vessels entering eyeball.

seen is formed. The mass of the eyeball behind is formed by the vitreous humour, in front of which is swung the crystalline lens in its special capsule. The front of the lens, again, is partly separated from the aqueous humour, which fills the anterior chamber of the eye—the space between lens and cornea—by the iris, which is a contractile muscular curtain which contracts and dilates according to the stimuli applied through the nerves. The eyeball is fixed in the orbit by various

ligaments, and is moved by certain small muscles, the extrinsic muscles of the eyeball. Behind, the nerve of sight enters it and spreads out to form the retina, while with the nerve run the bloodvessels and lymphatics which supply the globe and its structures. The physiology of the normal eye will be familiar to every nurse who has attended a course of lectures, and we need here only deal with certain abnormalities which are true defects of vision.

The sclerotic coat and the delicate conjunctiva which is reflected from the eyelids on to the eyeball itself may be inflamed, causing the condition known as *conjunctivitis*. When the secretion due to such inflammation is purulent, the condition is familiarly termed "blight." Sore eyes, usually due to dust, neglect, and dirt, are very common among the poorer children, and yield readily to simple treatment with a mild lotion. Conjunctivitis is frequently an early symptom in acute diseases, and whenever a child is observed with its eyes red and inflamed careful inquiry should be made, and, if necessary, the case should be reported to the doctor. More severe cases of blight are due to specific organisms. There are many varieties, but the differential diagnosis is a matter for the school doctor. Whenever a child is seen suffering from acute inflammation of the conjunctiva, especially when the cornea is affected and there is photophobia, or an inability to bear the light, so that the lids are kept tightly closed, and often glued together by sticky secretion, the case should be reported to the doctor, and will generally be excluded. Many of these purulent discharges are highly contagious, and ophthalmia in a school child is a very serious matter, which imperatively calls for treatment.

Neglected conjunctivitis is one of the causes of *corneal ulcer* in children. The child keeps the lids of the affected eye closed, and some force is often necessary to evert the lids. This is best done by putting the forefinger of the left hand on the upper lid, pressing gently

on the eyeball, and then gently lifting the lid by the lashes with the fingers of the right hand ; if necessary, the lid may be further everted by using a thin spatula, but usually the view obtained by the first method is sufficient for ordinary inspection. In a case of corneal ulcer, the nurse will notice that there are some cloudy spots on the cornea ; these may vary from minute specks to quite large areas. There is usually much inflammation, photophobia, and watering of the eyes. Sometimes it is very difficult to see the little ulcer that causes all the trouble, while at other times it is easy to spot it. The child should be excluded and promptly treated. Opacities of the cornea are frequently found as the result of constitutional or local disease ; they are signs of the condition known as *keratitis*, and although they may apparently give rise to no trouble, and may not interfere with the child's sight, they should be referred to the doctor for further examination. In syphilitic children, keratitis is fairly common, but congenital syphilis is by no means the only cause of the condition. Cases of keratitis should never be neglected. The results of the disease are seen in the schools for the blind, and it has been estimated that 10 per cent. of blind children owe their misfortune to this condition. *Iritis* is a more acute and serious disease which affects the iris, and is rarely met with by the school nurse.

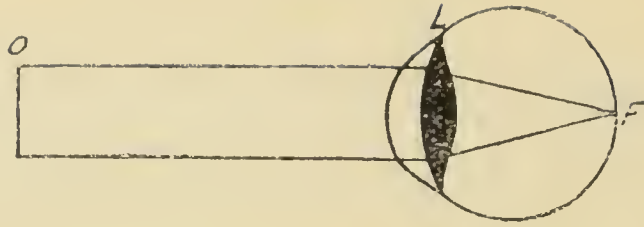
Of these conditions, the most important are undoubtedly the *purulent conjunctivitis* and the *ulceration of the cornea* that are so frequently met with. When a case of purulent ophthalmia has been excluded from the school, the nurse should inform the parents about the measures to be taken at home. Care must be taken that other children in the family are not infected. The child must not use the same towels as the other children, and must not wash in the same water. These are small points of practical importance, and the nurse has an excellent opportunity of doing good work, of national importance, by inculcating in the parents

the proper rules to be taken to prevent the spread of the disease. It is an appalling fact that most of the blindness that is to be met with in this country is due to parental neglect. The worse form of purulent ophthalmia is the gonorrhœal form, which is seen in babies, and may sometimes be met with in the infant's department among the poorer children. This is a very grave disease, and if not properly treated may destroy the sight of both eyes. Disease of the eyelids, styes, blepharitis, and ingrowing eyelashes, are other conditions, in the majority of cases due to neglect, dirt, and malnutrition, with which the nurse should be familiar. The treatment of all these is a matter for the doctor, and no home remedies should be advised, but the parents should be told to seek proper advice at the earliest opportunity.

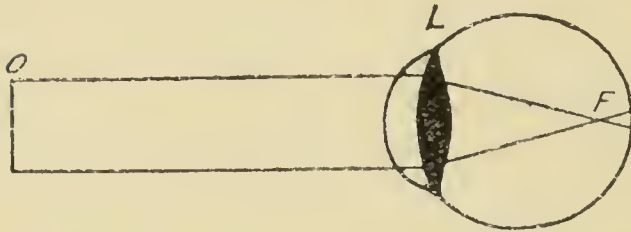
Graver eye diseases, among which may be mentioned *cataract* and *tumours of the eye* (the latter giving rise to the "cat's eye" in children), are sometimes observed, but usually the loss of sight attracts the teacher's attention, and the child is soon sent to the doctor. None of them is contagious, and the necessity for exclusion is therefore not so great, although it is, of course, desirable that the child should not attend the class; while it is imperative, if for home reasons he is allowed to remain at school, no work should be given to him which is likely to strain his eyesight.

We now come to defects of vision as distinct from diseases of the eye (see explanatory figures on p. 114). The most common of these are faults of accommodation. *Myopia*, or short sight, is perhaps the most common of all; it is due to an abnormal lengthening of the axis of the eyeball, so that the retina is too far from the lens, and the image is formed a little in front of the retina, and is therefore blurred. The myopic child cannot see objects at a distance, but can usually read quite well when the book is held close to its eyes. Such children need concave glasses, which correct the deformity by diverging the rays entering the

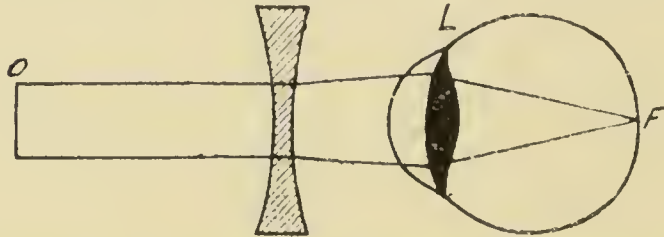
eye so that they do not focus so soon. *Hypermetropia*, or long sight, is a condition in which the axis of the eyeball is abnormally short, so that the rays are focussed behind the retina—the exact reverse of the myopic condition. The hypermetropic child cannot see near objects, and strains his muscles excessively in reading, sewing, or doing any near work. He needs convex glasses. *Astigmatism* is a condition in which both myopia and hypermetropia may coexist ; it is due to unequal curvature of the eyeball, usually in the cornea, and to correct it cylindrical glasses are required. These three kinds of defects are conveniently spoken of as errors of refraction. In every hundred school children in this country, roughly speaking, about ten suffer from errors of refraction ; of these four are long-sighted, three short-sighted, and three astigmatic, either long or short-sighted. Short-sightedness may be “congenital” or acquired ; the latter is much more common, and is largely due to the overstrain of the eyes in reading, sewing, and doing fine work. It is usually first seen in children who enter the higher classes, after leaving the infants’ department, and it tends to advance steadily, if not corrected by glasses, or if the child is prevented from relaxing the strain on its eyes. The former type is much more serious, as it is very rapidly progressive, and may lead to permanent blindness. It is, fortunately, much more rare than is generally supposed, but cases of marked near-sightedness in the infants’ department should be promptly attended to and reported to the doctor. Astigmatism and long-sightedness are both very common among school children. Such children suffer, in general, much more than the myopics ; they have very often a definite squint, due to the overaction of one or other of the small extrinsic eye muscles. No squint should be neglected ; it is sometimes due to paralysis, following an acute fever, but by far the commonest cause is an error of refraction. The parents should not be encouraged in the delusion



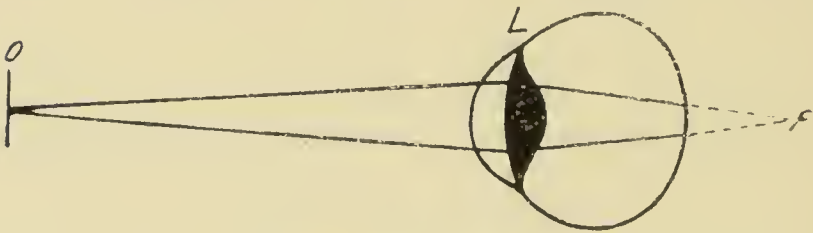
Normal eye.



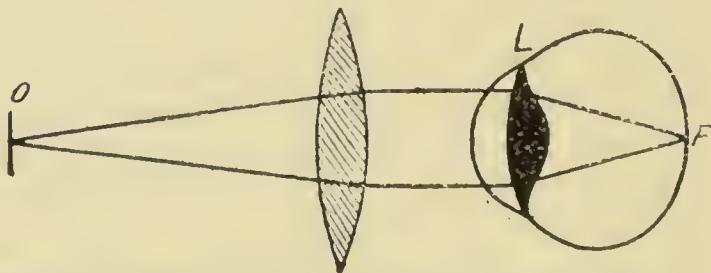
Myopic eye. The focus is in front of the retina.



Myopic eye. The error corrected by concave glasses.



Hypermetropic eye.



Hypermetropic eye corrected by convex glasses.

DIAGRAM ILLUSTRATING LONG, SHORT, AND NORMAL SIGHT.

O, Object ; *L*, lens ; *F*, focussing point on retina.

that the child will grow out of it, but should be urged to seek medical advice and to get proper treatment. The accompanying diagrams illustrate these conditions.

The symptoms which errors of refraction give rise to are very varied. Eye strain may show itself in frequent and severe headaches, during which the child is quite incapacitated from work ; in gastric disturbances, which may cause vomiting and nausea ; in deformities of the back and neck, owing to the uncomfortable and strained attitudes the child adopts ; in mental and physical fatigue, tiredness, " nervous attacks," pallor, and general debility. Many of these symptoms are ascribed to other causes by the parents or teachers, whereas in the majority of cases the real cause is a defect of vision, which is easily rectified by proper glasses. At the same time care should be taken that the glasses obtained are really good ; they should correct the error of refraction entirely, or almost entirely, and for that reason it is almost always necessary to use mydriatics (" drops ") in the vision tests. It is therefore necessary that the child should be taken to a good oculist or to an eye hospital where the cases are properly attended to. The nurse should test the vision when the child returns to school after the glasses have been provided ; if it is still bad, the case should be reported to the doctor, since bad glasses do more harm than no glasses at all. Nor must it be supposed that every child with defective vision necessarily needs glasses. The children should be instructed how to keep their spectacles clean and how to take care of them, while it is just as well that the nurse should know the various ways in which poor parents may obtain spectacles for their children through the medium of one or other of the charitable associations.

In the routine examination of the children with the doctor, the nurse will test the children's vision. The tests are carried out with the aid of a regulation test-card of variously sized types, which the child is told to read off at a distance. The test types must be hung so

that the top line is on a level with the head of the child as he stands facing the card, and must not be so low that the child has to cast down his eyes, nor so high that he has to look upwards. It should be in a good light, so that the figures and letters are properly illuminated, and should hang flat so that there is no reflection angle. The nurse should commence with the top and largest-sized type, and rapidly go down the lines, the child calling out each letter as it is pointed out. If there is any hesitation in calling the letter in any line, that line will have to be carefully gone over ; and if the letters are only correctly stated after an effort on the part of the child, the next largest line must be taken as denoting the normal vision. Infants and young children cannot be conveniently tested in this way when they do not know the names of the letters. Various test types are in use. Most commonly the "20 feet" test-card is provided, in which letters of the lowest line are of a size to be read by a normal visioned child at a distance of 20 feet. In other varieties the distances are recorded in metres, the lowest line being read 6 metres away by a normal-visioned child. When a child reads all the lines at the proper distance, it has excellent sight ; when it can only read the third line from the bottom at the required distance (20 feet or 6 metres), it means that the child's vision is defective. This test of vision is, of course, only suitable for the discovery of near-sightedness ; cases of long-sight must be discovered by using smaller type, and reading at short distances. Astigmatism is tested for by the use of test-cards which have a drawing consisting of parallel lines. These further tests are usually carried out by the school doctor.

When an error of vision, in the shape of an error of refraction, has been confirmed in a child, the teacher should be notified, and care should be taken while the child is waiting for its spectacles that no undue strain is put on the eyes. Sewing and fine needlework, the reading of small print, and the drawing of intricate

designs in drawing class, will have to be avoided. The child must be placed in one of the front ranks in the class, where it can easily see the blackboard. It is unnecessary to lay stress on the importance of having the blackboard itself in such a place and inclined at such an angle that it gets the maximum of light, so that whatever is written on it can be easily read from the back benches.

Ears.—Diseases and abnormal conditions of the ears are often neglected by the parents, and yet they are among the most important defects which are to be met with among school children. A discharging ear is not only a source of worry and trouble to the teacher and the rest of the class in which the child sits, since it very often has a foul smell, but it is a positive danger to the child itself, since there is always the possibility that an acute inflammation of the middle ear, with serious mastoid disease, may be set up. No case of discharging ears should therefore be neglected. The nurse in her routine inspections should examine the ears of every child in the class; a superficial inspection, in which the nose as well as the eye is used, is quite sufficient to detect the presence of an aural discharge. Many children have an accumulation of waxy material in their ears, and when the meatus has not been cleaned, this accumulation is likely, at first sight, to be taken as evidence of a dry discharge. A little attention to the colour and consistency of the material filling the meatus will usually suffice to guard against the mistake, which is, however, of little consequence, since such wax accumulations demand removal, and may sometimes, if neglected, give rise to trouble. The ordinary commonly met with aural discharge is light yellow in colour, and very foetid smelling; its most common cause is a chronic inflammation of the middle ear, with a perforation of the membrane. This condition is usually aggravated and kept up by bad adenoids, but it may be directly due to one of the acute fevers. Unless treated, it is a

source of infection to others and of constant ill-health, with the danger of an acute attack of inflammation, which may end fatally, to the child. There is also the fear that it may lead to deafness. Its treatment is sometimes a matter of difficulty, and in many cases its cure needs a great deal of care and perseverance on the part of the parent. Simple syringing often does little good. The best thing, pending proper treatment by the doctor, is to tell the parent to keep the child's ear clean and as sweet as possible by gently swabbing the meatus out with pledgets of clean, dry wadding. The bits of dirtied wadding should be burnt. Children with aural discharges should not be allowed to attend the swimming baths until the discharge has ceased. Treatment of the throat condition is sometimes a necessary preliminary to dealing with the ear, and this must be pointed out to the parents.

A word may be said regarding acute mastoid disease. This grave condition is, fortunately, rarely met with, for one reason because it makes the children so ill that they stay away from school and are taken to a doctor or to a hospital, so that the nurse has no opportunity of making the diagnosis in the first instance. Sometimes, however, she is in a position to discover the onset of the disease. The child in such a case is tired and indisposed to work ; it may complain of slight headache. An infant usually lies on the desk in front of it, with its head resting on its arms, and does not complain when left alone ; if it is touched, or if its head is moved, it will cry out, sometimes peevishly and without being able to locate the pain. On examination, a little swelling and tenderness may be discovered behind the ear, while finger pressure underneath the angle of the jaw on the same side gives rise to acute tenderness. If the condition is comparatively far advanced, the redness and œdema behind the ear are marked, and the auricle itself is pushed forwards so that it seems to stand away from the head. The temperature is raised, and there is

usually some constitutional disturbance. In small children it is quite possible to mistake the case for one of mumps or enlarged glands. Inquiry should be made as to whether the child has suffered from earache or discharging ears, and the case at once reported to the doctor. If the doctor is not on the premises, the child should be taken home, and the parents warned to seek medical advice as soon as possible.

Deafness in children may be due to several causes. The only ones that need be referred to here are chronic diseases of the ear and acute fevers. Deafness due to congenital syphilis is also met with. In an infant deafness is a very serious condition, since it may lead to deaf-mutism; in older children it is a grave inconvenience which may necessitate the child being referred to a special school. The tests to find out whether a child is deaf or not are, so far as the nurse is concerned, very simple. The child should be addressed in a whisper, and told to repeat what is said to it; if the whisper is not clearly heard, the voice should be raised and the same sentence or question spoken. Many children are put down as deaf when they are merely inattentive or careless. If there is any doubt about the presence of the deafness, the case should be regarded as suspicious, and should be referred to the school doctor, who will test it by the routine method, with tuning-fork and watch. When it has been definitely ascertained that deafness is present, the child must be treated or sent to a special school. Slight degrees of deafness may be compatible with what is apparently perfect health, so that the parents do not see why the child should require treatment. In such cases it must be explained to them that proper treatment may often do much to better the condition. The school doctor in such cases will have examined the mouth and throat, and given the nurse instructions with regard to the treatment recommended.

A boil or small carbuncle sometimes forms within the

meatus, and gives rise to great pain, swelling, and some fever. The condition is an acute one which needs immediate treatment, if only to get rid of the intense pain from which the child suffers. Eczema of the auricle is another condition frequently met with in school children ; it is usually easily cured by proper treatment. Ear-ache, which is very common, may be due to many causes, ranging from a slight cold to bad teeth and actual inflammation in the middle ear. Home remedies should be discouraged, and the child should be reported to the doctor for proper examination and treatment, if necessary.

CHAPTER XI

THE TEETH

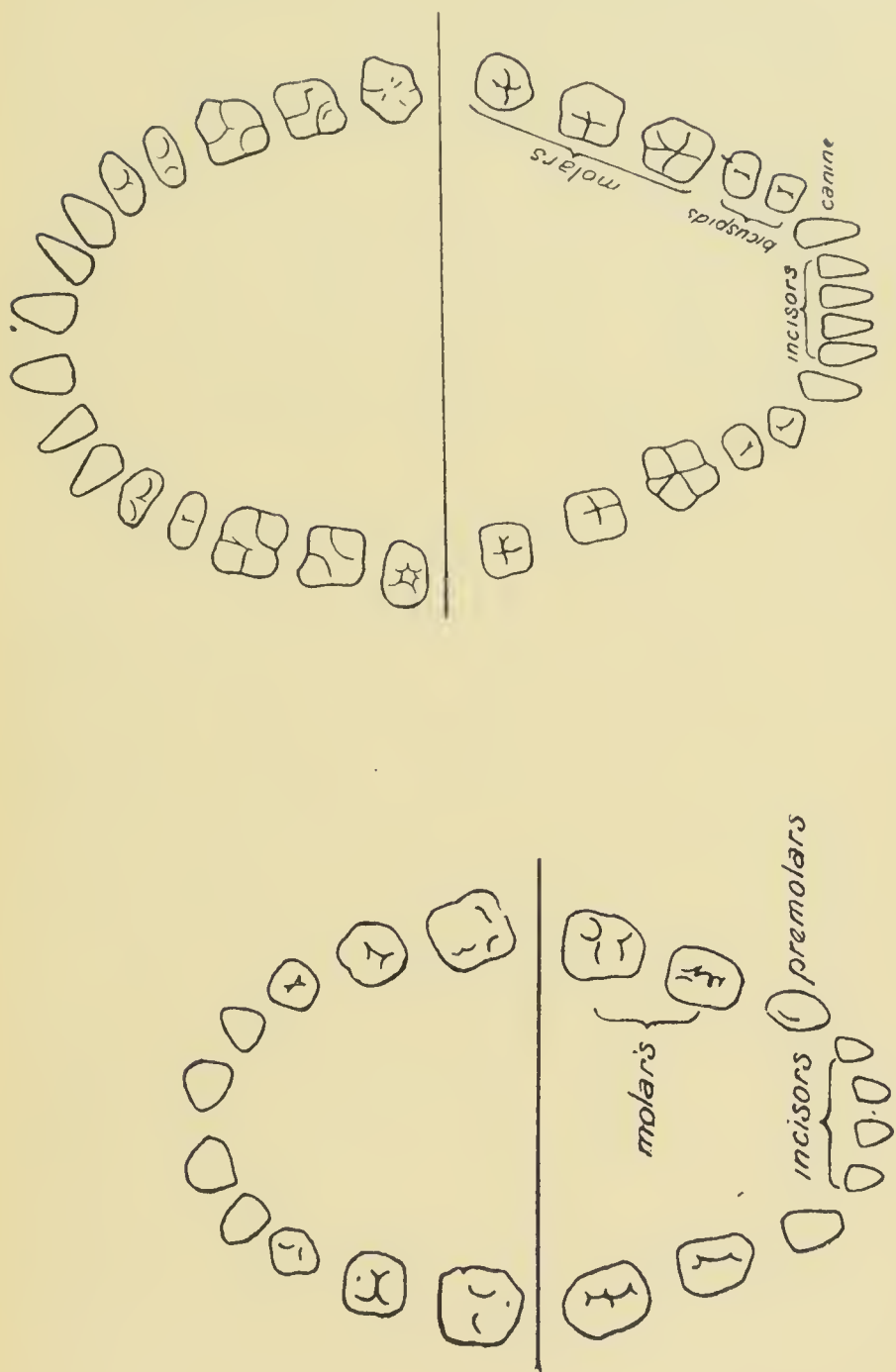
A NORMAL child begins to "cut" its teeth during the first year after birth, and possesses the full number of teeth which form the temporary, deciduous, or milk set at the end of its third year. The children in the infants' department—the youngest with whom the school nurse has to do—will therefore be in possession of this first set, which consists of twenty teeth, ten in each jaw—namely, four incisors, two canines, and four molars. These milk teeth are gradually lost as the child grows older, and are replaced by what are called the "successional teeth" of the permanent set, and by twelve other teeth, six in each jaw, which are known as the "superadded teeth," because they have nothing that corresponds to them in the milk set. The permanent set, therefore, consists of thirty-two teeth, sixteen in each jaw—namely, four incisors, two canines, four bicuspid, and six molars. Of these the last four molars, one on each side above and below, are known as the "wisdom teeth," and are, in general, only cut after the child has left school—usually after the sixteenth year. The others, however, erupt during the school-going age at various periods. The first tooth of the permanent set to appear is the first molar, which is cut in the sixth year; then come the two middle incisors, followed by the lateral ones, by the bicuspid, canines, and finally by the second molars. This permanent set is only lost through disease. If proper attention is

paid to the teeth, especially during childhood, there is no reason why they should not remain in the jaw until old age. In savages, for example, many old persons have excellent sets of teeth.

The accompanying illustrations on p. 123 show the arrangement of the teeth in the two sets in a diagrammatic manner.

In general, the teeth composing the deciduous set are similar in appearance to those of the permanent set, though they are smaller in size. Each tooth consists of a crown, which is the white, smooth portion projecting above the gum ; a root, which is the portion embedded in the socket ; and a neck, which is the narrow, constricted portion between the crown and the root. By its root the tooth is firmly embedded in the jaw, from which it is only loosened, in the case of the permanent teeth, by injury or disease, and in the case of the milk teeth by injury, disease, or the natural process of loosening which precedes the eruption of the permanent set. The front teeth possess each a single root, and the hinder teeth, or molars, two or three roots. The root is a tapering portion of dense bone, covered by a layer of bonelike substance called "cement," and is perforated by a narrow cavity, which proceeds upwards into the crown for a short distance, and which contains the pulp of the tooth. In this pulp run the bloodvessels and nerve, and, in general, the excruciating pain in toothache is caused by the congestion due to inflammation of the pulp, the nerve being compressed within the unyielding tube of bone. The root fades away into the narrow neck of the tooth, which above expands into the cutting portion, or crown. This latter is formed within of compact bone of a specialized kind, known as "dentine," which is covered outside with the gleaming white hard enamel.

The incisor teeth are those placed in the centre of the jaw above and below ; they possess a narrow, almost knifelike, crown, which is adapted for biting or incising



II

I.

DIAGRAM SHOWING (I.) MILK TEETH; (II.) PERMANENT TEETH.

the food, and are strikingly well developed in the so-called "gnawing" animals, like the rabbit and the rat. Next to them are the canines, or dog teeth, the fangs, the crowns of which taper to a point. Their use is to tear the food, and they are specially marked in dogs and cats. Next to them come the bicuspid, or premolars, which are smaller and shorter than the canines, and have a somewhat blunted crown, the upper surface of which is divided into two eminences, or cusps, this peculiarity giving them the name "bicuspid." The molar teeth—the largest in the jaw—are strong, with square-shaped crowns, the upper surface of which has more than two cusps or elevations.

The teeth are normally gleaming white, regular, and firmly fixed. The gum around the neck is pink in colour, firm to the touch, and fairly tightly stretched. When the child is anæmic the gum shows pale, and in some conditions—rickets and debilitated states—the gums are soft and spongy, while the teeth are loose in their sockets. In the condition known as *pyorrhœa alveolaris* there is suppuration round the neck of the tooth, and by pressing on the gum this pus can be squeezed out. The teeth are loose, and the child's breath is very foul. The condition is a serious one, and imperatively demands attention.

Irregularity of the teeth is often met with; fully 60 per cent. of London school children have irregular teeth. Such irregularity may be due to various causes, and is usually more prominent in the milk teeth. Each tooth is developed from what is known as a "tooth germ," and anything which interferes with the nutrition of this little growing germ is likely to leave a mark on the tooth when it is erupted. Any inflammatory or irritative condition in the mouth of the infant is liable to lead to such interference. The most common cause is stomatitis. Stomatitic teeth are easily known by the little indentations on the crown, which give to them a

kind of jagged or sawlike appearance, which is well seen in the incisor teeth. In cases of congenital syphilis the teeth often present characteristic appearances, the lateral incisors being no longer almost square, but tapering and blunt, so that they have been likened to peg-tops.

Various nutritional and other defects may lead to marked alteration in the form of the facial bones of the growing child, with the result that the jaws are mal-developed. In that case the teeth will present an irregular and abnormal appearance. The upper jaw may project over the lower, so that the upper and lower front teeth no longer come into contact when the child closes its jaw. Such a condition is said to be "overhung," or "underhung" jaw, according as the upper or lower jaw projects more. Minor degrees of this deformity are fairly common, and may be corrected by suitable treatment when the child is young.

The most common abnormal condition met with in the teeth is caries. This, indeed, is so common that a very large percentage of children suffer from it. By "caries" is meant a destruction of the crown of the tooth, which is discoloured, eroded, and perhaps broken. It may be observed in its beginning as a mere speck of discoloration on the upper surface or sides of the crown, or, in later stages, as a large cavity, which has destroyed almost the whole of the gum, so that only the carious stump of the tooth remains in the jaw. The causes of caries are many and various. Bad nutrition, defective mastication of food, the consumption of soft and bad food, and general neglect of the teeth, together with stomach and intestinal troubles, may cause it. Every child should be taught how to use a tooth-brush, and how to clean its teeth. This is a point on which the school nurse should lay great stress, and she can do much by inculcating a knowledge of the principles of the hygiene of the mouth. By attention to these principles much of the trouble caused by carious and unsound

teeth may be avoided. It is a general rule to class one of two carious teeth as "bad"; more than three justifies the condition of the teeth being described as "very bad." A single carious tooth, however, should be attended to just as much as more than one. It need not necessarily be extracted, for by proper dental treatment the tooth may be saved. In young children with carious milk teeth it is generally preferable to extract the carious teeth, for unless they are properly attended to they may interfere with the development of the permanent teeth, and occasion the latter to be irregular or deformed.

In some schools, tooth-brush classes are held under the supervision of the nurse. She should see that the tooth-brushes, which ought to be moderately soft, have no loose bristles, and that they are properly cleaned after use. No tooth-powder or dentifrice is necessary; a weak solution of carbonate of soda in water serves excellently as a mouth-wash and for cleaning the brushes after use. Each child should, of course, have his or her own brush, and should be taught how to look after it. It is much better, however, to train the children to use the tooth-brush at home—at night before going to rest, and in the morning after rising. Here again the school nurse can do excellent work by pointing out to the parents and the children the troubles that may arise from leaving the teeth unattended to, and from neglecting the rudiments of oral hygiene.

These troubles need not be elaborated in detail. When the carious tooth is left untreated, the crown is gradually eroded until the pulp is exposed, with the result that the child suffers from toothache, which may progress into a bad neuralgia. Worse than this, however, because it is more insidious and its obvious discomforts are not realized by parent or child, is the slow poisoning that results from the presence of bad carious teeth in the mouth. Such teeth serve as a focus for numerous bacteria; the child daily swallows these; its

breath is foul, and its general health inevitably suffers. Every case of carious teeth should be attended to, and it is a golden rule never to neglect the trouble at its start. A small hole may easily be stopped and the loss of the tooth thus prevented by timely dental treatment. The main efforts of nurse and doctor should, however, be directed to preventing caries, and that can only be done by effective and thorough care while the teeth are yet sound.

The graver conditions need only a passing notice. They fall under the domain of the school doctor; but the nurse should be able to distinguish their gravity, so as to be able to direct his attention to them. The most common is dental abscess, which is usually the result of easily detectable caries. Sometimes, however, there is a small patch of caries low down in the neck of the tooth, which is only discoverable on close examination. A child with dental abscess presents certain definite symptoms. The main ones are aching pain in the jaw at the site of the abscess, swelling, redness and inflammation, and some slight constitutional disturbance. The abscess usually forms about the root of the tooth, and generally points on the gum, giving rise to the well-known gumboil. Such a child, of course, imperatively needs dental treatment as soon as possible; it is, in fact, an urgent case. No attempt should be made to alleviate the pain by applying warm fomentations to the cheek, since they may result in the abscess pointing, not inside the mouth, but outside, and thereby leaving an unsightly scar when it breaks. An antiseptic mouth-wash—a weak solution of lysterine or sanitas serves admirably—should be given, and the child taken for dental treatment as soon as possible. By neglecting an abscess a great deal of serious trouble may subsequently arise, and there is no excuse whatever for allowing nature to attempt to deal with the trouble without the aid of the dentist.

A swelling around the teeth may not always be a

gumboil ; it is sometimes a much more serious matter, and, as a rule, every irregularity of the gums in a child of school age should be pointed out to the doctor. Fibrous tumours (epulis) may form on the gum, or bony tumours (odontomes) round the fang or root. These latter may be cancerous or benign, but the differentiation between them is often a matter of great difficulty, and should be left to the medical man. It is the school nurse's duty to draw the parents' attention to the fact that there is something in the child's mouth which urgently demands treatment, and to see that a proper examination is made as soon as possible.

A perfectly sound set of teeth is met with in few children—probably not in more than five per cent. of all children examined. In examining the teeth, the nurse should proceed gently and methodically. There is no necessity whatever to introduce a spatula or pencil into the child's mouth. All that is necessary is to inspect the teeth in a good light, and, when such inspection reveals any abnormality, to refer the case to the doctor for further examination.

CHAPTER XII

SOME ABDOMINAL CONDITIONS

THE diagnosis of these is a matter for the school doctor. All that the nurse can do is to report a case where it appears to her that examination is desirable. And since it often happens that a grave abdominal condition may, at its onset, give rise to comparatively slight symptoms, it is necessary that she should understand something about the more common and serious diseases, so as to be able to refer suspicious cases to the proper quarter without loss of time.

The main symptoms in abdominal conditions in children, roughly speaking, are pain and vomiting. Pain in the stomach—in reality, pain which is localized round the umbilicus—is a frequent complaint, and may be due to a transient attack of indigestion caused by eating indigestible and badly cooked food, or may be the precursor of a bad attack of appendicitis. No abdominal pain of any kind should, therefore, be neglected. A little care will usually enable the nurse to find out where the pain is and what its nature is. Young children in the infants' department cannot describe their symptoms, but their facial expression, and the way in which they carry themselves, are good criteria of the existence of definite pain.

Without going into the details of the various conditions which may give rise to abdominal pain, it may be as well to enumerate briefly the most important of these. Acute pain, of sudden onset, re-

lieved by pressure and following, generally, soon after a meal, is usually due to colic. When it is not relieved but made worse by pressure, colic can generally be put out. We have then some other condition to take into account, and usually a much graver one. Even colicky pain, occurring in spasms and relieved by pressure, may be the symptom of a very serious condition in a young child—intussusception. In this, the pain is so severe that the child rolls on the floor. It is constipated or passes only a little bloody slime, and it is soon extremely weak and ill. This condition is very grave, and no time should be lost in sending for medical aid. Sudden, acutely severe pain in an older child, either girl or boy, who has previously suffered from “indigestion pains,” may be the beginning of an attack of appendicitis, or may, more rarely be due to rupture of a gastric ulcer. In the latter condition (which is fortunately very rare) the pain is exceedingly sudden and severe, and is attended by immediate collapse, by vomiting, and by a quick, small pulse. Where there is some temperature and quickening of the pulse, the probabilities are that the pain is due to an inflammatory condition such as appendicitis. The pain in this disease is not at first localized over the appendix in the right iliac fossa, but spread around the navel. There is vomiting, and the child looks exhausted and weak, with a characteristically drawn face, such as is seen in almost every condition of great pain in children. In cases of gastritis, acute and subacute, the pain may be very severe, but is not usually sudden in onset. There are usually slight pains which increase in severity. Some children suffer from pains in the back and in the loin, due to kidney disease, usually a stone or tuberculosis of the kidney. Abdominal pain is sometimes complained of in the beginning of certain acute fevers such as scarlet and German measles. In one specific disease it is, in children, almost a constant symptom and an exceedingly misleading one. This is in purpura, a disease in which there is an extravasation

of blood into the tissues, so that petechiæ, or small spots of a dark red colour which cannot be dispersed by finger pressure, appear on the skin. The abdominal pain in purpura is very severe, and may double up the child and cause it to cry out.

In these conditions associated with abdominal pain, the nurse should examine the child with a view to finding out, if possible, whether the pain is due to simple colic, or whether it is more serious. Put the child on its back and take its temperature; look at its tongue and feel its pulse. These preliminaries yield valuable evidence towards a diagnosis, and should never be omitted. It is not necessary to make an examination of the abdomen. If the examination of the pulse, tongue, and temperature has shown that there is some abnormality, the case should be considered serious enough to warrant an immediate report to the doctor or teacher. No time should be lost in these circumstances, as it is of the utmost importance in every serious abdominal condition that the child should be seen by a doctor as soon as possible.

Vomiting in children is by no means uncommon, but it is always a condition which should be carefully looked into. A young child may vomit the food it has just eaten owing to some transient irritation of the stomach, while in cases of chronic indigestion in children vomiting is common enough. But where a child, who has previously never suffered from this symptom, suddenly feels sick in class and begins to vomit, the nurse should lose no time in examining it, and should bear in mind the most important conditions that give rise to the symptom. These are the acute abdominal conditions just mentioned, and the various specific fevers which usually set in with some constitutional disturbance. Find out if the child has a rash on any part of its body, if its tongue is coated, if it has nasal catarrh, a discharge from the ears, conjunctivitis, headache, or pain; see whether or not its tongue is coated, and if it has any rise in temperature. If the

vomiting is bloody, examine the mouth and pharynx to see if it has any abrasion or wound. Make a note of all these points, and report the findings to the doctor when the case is brought before him, as it ought to be as soon as possible. In some rare cases vomiting is an early, and as far as a superficial examination is concerned the only, symptom in grave disease of the brain, and no attack of sickness and vomiting should be set down to a mere bilious headache or to indigestion until the child has been carefully examined by the school doctor.

Diarrhœa in children and constipation are only rarely referred to the nurse. The latter is sometimes reported by the parents, who may ask the nurse's advice with regard to the treatment. In such cases it is well to have the child medically examined first before offering any advice, since the constipation may be due to some definite cause which may be removed with appropriate treatment. Where constipation is habitual, it is better that the child should be treated with proper diet than that it should be made to take aperient medicines. If an aperient is necessary, castor-oil is undoubtedly the best. It is usually readily taken if a good quality oil is provided. Where it is objected to, its taste may be disguised by floating some lemon-juice over it, or by holding the nose when it is swallowed. Ordinary salad oil is sometimes a useful remedy in these cases, and it must be remembered that it is also a food. Diarrhœa may be the first symptom heralding the onset of an acute disease such as a fever, or it may be due to irritation of the bowel by unsuitable food, to cold, or to a mild catarrh of the bowels. The child may complain to the teacher, or, in infants, the teacher's attention may be called to it owing to the fact that it has soiled its clothes.

The nurse should, in such cases, make a preliminary examination in the manner already described, and should send the child home, or, if the school doctor is on the

premises, report the case to him. In all cases where the diarrhœa continues, and is accompanied with pain, medical advice should be obtained.

Many children suffer from worms, and the nurse's advice will often be asked by parents with regard to the treatment of this condition. The symptoms are indefinite, and the only certain diagnosis is when the worms are actually passed in the fæces. Usually, however, a child with worms is of a particularly sallow-pale complexion : it is listless, has an abnormal appetite, now and then eating scarcely anything, and then again consuming large quantities of food ; it suffers from irritation round the anus, and from transient and recurring abdominal pain of a colicky nature ; it may lose weight, and may have periodical attacks of indigestion ; and lastly—a point on which the parents usually lay great stress—it may be restless at night, grinding its teeth, and tossing from side to side. These night symptoms are not, however, peculiar to children who have worms ; they are often met with in neurotic, anæmic children. The treatment of a case of worms depends largely on the diagnosis. If it is a case of tape-worm or the larger round worms, the doctor must direct it, since the use of certain strong vermifuges, such as santonin or male fern, is indicated. In the case of the smaller round worms, the treatment is by means of purges such as jalap or calomel, together with astringent enemata to kill the worms in the lower part of the large intestine. The parents should be advised to see a doctor.

In some cases the parents will tell the school nurse that their young child suffers from a “ falling down of the bowel.” This is the condition known as prolapsus ani, and is by no means uncommon in young children in the infants' department, though it is rare to meet with it in older children. Whenever the child strains at defæcation, the loose mucous membrane of the rectum is extruded from the anus, and appears as a reddish mass, which is usually easily pushed back. In the

majority of cases the condition is curable by some attention to diet, and to the ordinary rules of hygiene. The parts should be kept very clean, and the child should be made to empty its bowels while it is lying down and not while it is sitting up. It should have good and proper food, with a fair amount of fat. When this treatment does not cure the condition, it must be referred to the doctor. In that case tonic and sometimes operative treatment is necessary.

Jaundice in children is not uncommon. It may be due to gastric or intestinal disturbance, to an acute catarrhal condition, or to grave chronic disease inside the abdomen. Every case that presents this sign should be reported, so that it can be properly examined by the school or private doctor.

CHAPTER XIII

DEFORMITIES

THE deformities which the school child suffers from are many and varied. Only the main ones will be dealt with in this short chapter, since it is obviously impossible to describe them all.

In general, the deformities with which the school nurse will meet during the course of her work can be divided into two groups: those due to some inherited or congenital defect, and those which are acquired after birth. As an example of the first group may be cited the want of a limb or part of a limb, technically known as phocomely. In the latter group are included the vast majority of the deformities which are seen in school children, as the result of rickets or other disease.

The first group needs little comment. When a child has suffered from an obvious deformity since birth, the parents are usually aware of it, and it is remarked upon by the teacher in the infants' department. There is then very little chance of it remaining undiscovered and untreated. Absence of a limb or part of a limb, which is not very uncommon, especially in boys, is due to some fault in development which is not yet sufficiently well understood. In the case of the arms, the limb is usually amputated, as it were, just below the elbow. At the extremity of the stump the vestiges of fingers may be seen, and similarly on a lower-limb stump the rudiments of toes. All that can be done for such children is to supply them with an artificial limb to repair

the loss, while they must be taught to use the remaining limb to its fullest extent. If no artificial limb is supplied, or if the case is absolutely untreated and the child is not trained properly, there is always a risk that an acquired deformity, due to the way in which the body is carried, will develop.

A congenital deformity of great importance is cleft palate, which may or may not be accompanied with hare-lip. There may be only a short gap in the palate, extending some distance from the edge of the hare-lip fissure, or there may be a large fissure which splits the soft palate, and reveals the sharp edge of the vomer bone behind. If the defect is untreated, the child suffers permanently from an inability to pronounce certain letters ; its speech is nasal, and its articulation deficient. There is some difference of opinion as to the best time for operating on these cases, but everyone agrees that they should be treated by operation, since this is the only way in which the defect can be cured. The child must be sent to a surgeon or to a hospital, and the operation is, of course, a serious one, as it involves a prolonged and complicated readjustment by flaps of the palate. The nurse should point out to the parents that a great deal remains to be done after operation. The child must be taught how to use its palate properly, and must be helped in its efforts to pronounce difficult palatal sounds by "palate exercises." The doctor will instruct the nurse in these details, and will generally show the parent how to make the child do the exercises. The nurse should see that the instructions are properly understood and carried out.

Hare-lip, if unaccompanied by cleft palate, does not interfere with articulation, but is extremely unsightly, and may generally be remedied by operation. This is not so serious as in the case of cleft palate, and parents should be encouraged to take their children to be treated, since the deformity is a great disadvantage to the child in after life. Congenital club-foot, club-hand, and

similar defects due to ante-natal causes, are often met with. Each case must be properly reported to the doctor, who will examine it, and give the nurse her instructions with regard to recommendations for treatment.

Acquired deformities are much more important, in general, than the congenital, since they are progressive, and unless treated at an early stage may give rise to serious trouble later on. The most common one, perhaps, is scoliosis, or lateral curvature. This is met with in 12 per cent. of school children in a well-marked degree ; minor degrees are much more common. The human spine may be looked upon as an elastic rod, formed by the various vertebræ, and possessing a somewhat **S**-shaped curve, being convexly bent forwards in the neck and lumbar region, and concavely forwards in the chest and pelvic regions. This curvature is mainly from before backwards, but there is, in addition, a certain amount of lateral curvature, so that the whole of the spine is not absolutely straight. When the forward or backward curves are exaggerated, the condition is spoken of as lordosis and kyphosis respectively ; when the normal lateral curve is exaggerated, or when an additional lateral curve is developed, the condition is called scoliosis. In scoliosis there is usually some degree of twisting of the vertebræ upon each other, and various and highly complicated conditions may occur which it is not necessary to describe in detail. When a child stands erect with both feet planted close together, the soles resting firmly on an even surface, and the head held erect, it will be noticed that, if the child has a normal spine, the two shoulders are on a level, and that there is no difference between the angle made by the hips on either side. If the child now bends forwards, inclining the arms downwards so that the finger tips approach the ground, the back in the shoulder region will curve gently, so that each shoulder forms a rounded prominence. In this attitude there should be no difference between the two sides of the back. The curve of

the back is now concave to the front, being in the shape of a semicircle, and the lateral curve is almost abolished. In cases with marked lateral curvature, however, it will be noticed, in the first position, that one of the shoulders is a little bit higher than the other. The shoulder itself may be rounded, the head inclined forwards, so that the normal forward and backward curves are exaggerated. The angle made by the hips with the trunk on the one side is more marked than on the other, and there is generally to be noticed a deviation of the spine to one or other side. If the child now bends forwards, the rounded outline of the back is seen to be no longer equally prominent on both sides. It is less prominent on one and more prominent on the other side. When these curves are noticed, care should be taken to find out to what they are due. In the majority of cases they are postural curves, due to bad position when sitting or standing. This results in tiring one set of muscles and throwing a greater strain upon them so that they can no longer maintain the balance of the spine. In other cases the deformity is due to some cause which habitually throws a greater strain on one set of muscles. The most common cause is probably flat foot on the one side, but any unilateral deformity of the lower limbs—or the upper for that matter, since the carriage of the body greatly influences the development of such curves—may occasion scoliosis. Every care should be taken to find out if such abnormality exists. If nothing is found, the case may be looked upon as one of postural scoliosis. The treatment is to strengthen the fatigued muscles, and correct the deformity by suitable exercises. The child should be seen by the doctor, and should attend a proper orthopædic class, where it can be taught to do the exercises in a thorough manner. Of late years the crawl treatment has been successfully used in dealing with these cases of postural scoliosis. At Berlin there are special crawl classes in connection with the Royal Surgical Clinic. School children suffer-

ing from lateral curvature attend every day, and are put through a course of "crawling" under the supervision of a trained nurse. In some cases massage, swing movements, and exercises on special apparatus are added. In bad cases the child may have to wear special stays, but when scoliosis is taken in hand early such apparatus is usually unnecessary, and it is always expensive. The most generally useful exercise for children suffering from lateral curvature is swimming. In this the muscles of the back are actively used, and mild degrees of the deformity are usually soon corrected. The parents should be warned that if the scoliosis is not seen to, it may get worse, and may in time develop into a bad deformity which in the case of girls may have serious after consequences. The treatment is often prolonged, but it must be persevered in, and stress should be laid on the fact that a bad posture at home is just as bad as at school.

Angular curvature in a mild form is very common among children. The most common form is probably the lordosis which is seen in young children. In this variety the child's abdomen is very prominent, and there is a markedly concave backward curve in the lumbar region, usually accompanied with round shoulders, and with some degree of lateral curvature as well—a kypho-lordo-scoliosis in fact. When angular curvature is very marked, the cause is most frequently rickets; very great care should be taken to exclude bone disease, such as tubercular caries of the spine. In tuberculosis there is generally pain and tenderness. An early sign is well-marked pain at the point of curvature, when the child is told to lie flat on its back, and then to lift its head and the upper part of its body without using its arms. The diagnosis between postural curves and those due to disease is, however, no part of the school nurse's duties. It is for the doctor to make the diagnosis in every case, and all that the nurse has to do is to direct his attention to such cases of curvature as she thinks should

be seen to. In a case of spinal caries, she will have to explain to the parents that the curve is due to a definite diseased condition, which needs the most careful treatment, and which is in every way a very grave condition, that unfits the child for school work.

Wry neck is nearly always accompanied with a marked degree of lateral curvature, owing to the fact that the upper part of the child's body is carried in an abnormal and strained position. Wry neck consists in a shortening of one of the sterno-mastoid muscles of the neck, caused by some injury resulting in inflammation of the muscle itself. Such injury may be before, during, or after the birth of the child, and it should be borne in mind that a cause of torticollis or wry neck is sometimes the suppuration of glands in the neck. In a typical case the head is drawn to one side, the chin pointing towards the other shoulder, so that the one ear is lower down than the other. If on the side on which the ear is lower the sterno-mastoid muscle be now felt by the hand, it will be found to be hard and tense, and obviously contracted. Usually it is felt as a tight cord. There is always some facial hemiatrophy, so that one side of the face is better developed than the other, the less well-developed side being that of the contracted muscle. The parents, curiously enough, do not notice this asymmetry in the majority of cases until their attention is called to it; but it is well seen in a mirror, or even better in a photograph of the child's face. Sometimes hemiatrophy of the face is met with in children who have no wry neck. The mal-development is then due to some other cause, with which we are imperfectly acquainted. Adenoids, defective eruption of the teeth, defective vision, and any condition which may interfere with the growth of the facial bones, may be adduced as probable causes—a probable causative factor. The treatment of these conditions of facial hemiatrophy unaccompanied with wry neck need not concern us. That of wry neck, however, is very important, since if

the condition is untreated, a bad lateral curvature develops. An operation is always necessary, and prolonged after-care is equally needed to prevent the results of the deformity from increasing.

Other contractions and deformities of muscles may be met with, but they are rare conditions. Not infrequently a case of dislocation of the hip may be observed, due either to congenital causes or to early paralysis. The dislocation may be on one side only or on both sides, and is more common in girls. Usually there is marked inequality of the limbs, the leg on the dislocated side being smaller and less well-developed than on the other side. There is a well-marked lateral curvature and some lordosis owing to the defective position of the body, and the child walks with a peculiar, characteristic waddling gait. Other conditions may mimic this walk, the most common being hip disease and coxa vara, the latter being a deformity of the neck of the thigh bone. The treatment of congenital hip dislocation is important since if the child is treated early, there is a fair chance that it may be quite cured, while if the case is left till late in life, it is very difficult to reduce the dislocation, and to correct the exaggerated degree of lateral and angular curvature that has developed. The parents should be urged, therefore, to take their child as soon as possible for advice and treatment, and the nurse may explain to them that the operation is not necessarily a cutting one, since such hips are now usually reduced by what is known as the bloodless method. An anæsthetic is given, and the dislocation reduced ; the leg and thigh are then put in plaster, the thigh being abducted to a marked extent. The child has to lie in the plaster casing for a few weeks, and is then put into another plaster, in which it is allowed to walk, the legs being gradually adducted until at last the patient walks on both feet. The after-treatment is long, and needs much attention on the part of those responsible for the child's welfare ; but the results, under proper

treatment, are very striking. Dislocation of the humerus and of the knee is sometimes, though very rarely, met with. The treatment is surgical in each case.

Deformities of the lower limbs, such as club and flat foot, equinus and calcaneus, and rickety deformities, such as knock-knee and bowed legs, are often met with, and may occasion much inconvenience, and even great pain to the children afflicted with them. They are all capable of cure when treated early and properly. Every case should be urged to seek proper orthopædic advice, and the parents should be told of the necessary and inevitable bad results which follow neglect of such advice. In bad cases these deformities may cause almost permanent disablement. In all, they give rise to marked lateral curvature and spinal deformity. The treatment is surgical—not necessarily by a cutting operation, but by proper orthopædic means—and is usually very successful, especially in young children. The diagnosis of these conditions, again, is a matter for the doctor. Paralytic deformities are by no means infrequent among school children. The acute, presumably infective, disease, known as “infantile paralysis”—though, as a matter of fact, it is not limited to infants—may occur in epidemics. It is ushered in with vague pains and constitutional symptoms, and is sometimes accompanied by a transient rash. There is some rise of temperature, but the first sign usually that attracts the parents’ attention is the fact that the child has one or more limbs paralyzed. Such paralysis tends to get better, even when untreated, but generally part of it remains so that a limb or a set of muscles is permanently useless. Treated at an early stage, the child may be much benefited by appropriate measures. Unfortunately, these cases are not seen early, and the nurse will meet not with the disease itself, but with its results, in the shape of a paralyzed and flaccid arm or leg. All these bad after-effects should be seen by the school doctor, who will report the child as physically defective, and instruct

the parents. The nurse may point out to the latter that no case is hopeless, and that in the worse degrees a great deal may be done for the comfort of the little patient. In some bad cases extensive operation may have to be done. Where a limb is so useless that it is more a source of worry and trouble than an aid to the child, an apparatus must be worn.

Although not usually classed under deformities, tumours may conveniently be discussed in this chapter. In children the nurse will meet with many varieties of these. The malignant tumours, or sarcomata, are not uncommon in children, and as they usually do not at first give rise to pain or any other obvious symptoms, they may be overlooked by the parents. Every hard tumour on the bones or in the soft tissues should be promptly referred to the doctor, since the diagnosis must be made by him. Small, semi-elastic tumours on the back of the hand or wrist, or partly fluctuating tumours of small size on the palmar aspect of the hand, are usually ganglia of the synovial sheaths. When large and doughy they may be tuberculous. They should never be neglected, but promptly reported for treatment. Swellings in the neck may be enlarged glands—much the most common—or cystic tumours. A rounded, tense, fluctuating, bluish swelling in the floor of the mouth, generally near the frenum of the tongue, is a ranula. On the scalp and in various parts of the body, small hard tumours may sometimes be seen. These may be dermoid cysts, sebaceous cysts, or fatty or fibrous growths—lipomata and fibromata. A well-marked enlargement below the thyroid cartilage in the neck, more commonly seen in girls, is usually an enlargement of the thyroid gland—a goitre. Warty tumours may occur on the face, especially in dirty children; in the groin, or on the back of the hands. The little warty nodules that are sometimes seen below the ears are usually accessory auricles, and are sometimes associated with other “stigmata of degeneration,” such as cleft palate and hare-lip, a split

uvula, or accessory fingers and toes. A soft, compressible tumour in the groin, at the umbilicus, or near the scar of an abdominal operation, is usually a rupture. The parents will generally tell the nurse if the child has a rupture, and ask her advice with regard to treatment. While it is the doctor's province to prescribe treatment, it may be said that the only radical cure of a rupture is by operation. An operation for hernia in a child is accompanied by comparatively little risk, and its results are usually excellent. It frees the child from all danger of the rupture becoming strangulated, and from the annoyance of having to wear a truss which is expensive and difficult to keep clean. Where the nurse has any influence with the parents, she should therefore urge upon them the advisability of consulting a surgeon, and having the child operated on.

Venous tumours, either cavernous naevi or angiomas, are not infrequently met with, and may sometimes be large in size. Varicose veins, on the other hand, are quite uncommon in children. In a few cases they are seen in the boys or girls in the upper classes. Tumours in the mouth and on the jaws have been referred to in the chapter dealing with the teeth.

In all cases where a child is found to have a tumour, no matter where it is, the case should be reported to the doctor. Such things are too serious to permit the nurse to make a diagnosis on her own responsibility. While the vast majority of such growths are innocent, some of them are very malignant, and demand prompt treatment if the child is to be cured.

CHAPTER XIV

NERVOUS DISEASES

THE nervous system in the growing child is particularly susceptible to morbid influences, and it is therefore of the utmost importance that any slight disturbance, however trivial it may seem to be at first sight, should be taken into account and treated, if the child is to grow up a healthy, normal individual. With the mental conditions which are closely connected with the nervous condition in children, we have dealt with in the chapter on mentally defective children, but it is necessary to deal in some detail with certain more purely nervous diseases and conditions which are commonly met with in children of school-going age. For the sake of convenience we may group these diseases into two classes, and term them organic disease and functional disease of the nervous system.

In the first group are included conditions in which we know that there exists some definite pathological change in the central nervous system. As examples may be cited facial paralysis, the various degrees of neuralgia, of palsies and paralysis, and the interesting atrophic degeneration of the muscles. In the second fall the peculiar class of diseases characterized by convulsive, involuntary movement, about the exact pathological features of which we do not yet know sufficient to ascribe the conditions to some definite change in the system. Doubtless, in course of time, our knowledge of the causation of these latter conditions

will grow more exact, but at present we can only call them functional diseases, clearly realizing, at the same time, that they are definite morbid states, which depend on some undiscovered pathological change in the nervous system.

It is this latter type of nervous disease that the school nurse will meet most frequently, since the two great exemplars of it, chorea and epilepsy, are to be observed in almost every school where the number of children is large. Hysteria and neurasthenia, which belong to the same group are much rarer in children, but are sometimes seen in the schools.

The convulsive diseases in children are tetany and the varieties of spasm, chorea minor, and epilepsy. Tetany occurs chiefly in underfed, weakly infants. A rare type, known as pseudo-tetanus, is sometimes, though rarely, seen in older children. The chief symptoms consist in convulsions of the extremities, accompanied with some rigidity ; but there is never any unconsciousness. The child carries its legs and arms in a peculiar attitude : the legs are flexed at the hip and knee, and the feet are in a position of club foot, while the arms are bent on the trunk, and the hands held in a flexed condition, with the finger-tips pointing inwards and downwards—an attitude which has been likened to that of a dog begging. The attacks recur from time to time. The diagnosis is confirmed by the existence of three special signs, which are known as Chvosteck's, Erb's, and Trousseau's phenomena, and which depend on the increased excitability of the nerves or muscles in this condition. Thus, when the facial nerve is gently tapped with the fingers at the level of the ear, the parts supplied by the nerve are found to twitch convulsively (Chvosteck's sign). If the cheek is gently stroked, the same twitching may sometimes be observed (Schultze's sign) in grave cases. If the big nerve trunks are pressed upon, similar convulsive movements are produced (Trousseau's sign) Erb's sign is only

obtained with the galvanic current when it is applied to certain parts. The diagnosis should, of course, be made by the doctor, and not by the nurse. The treatment of the condition demands great care and attention. The child must not attend school, and its general health must be maintained. Usually, children suffering from tetany also suffer from some intestinal or gastric trouble.

Isolated convulsive movements of the face and limbs are often observed in children who may otherwise appear to be normal. In many cases these are habit spasms. The child who nods its head and twitches its mouth when it gets excited, or is conscious of being observed, is a case in point. Such convulsive movements are due to nervousness, and are exaggerated when attention is drawn to them by the teacher, nurse, or the children in class. The child should be trained to overcome its nervousness, and to get rid of its shy, self-conscious feeling. Punishment for such children is entirely unnecessary and harmful. They are not responsible for their nervousness, which is usually due to factors not under their control, but much may be done to help them to overcome it. Facial tic and spasm of individual muscles always suggest some morbid condition, and children in whom these signs appear should be reported to the doctor for thorough examination. Nervousness in a child may influence the pulse-rate and the beating of the heart. It may cause convulsive movements and twitchings of the muscles, which readily disappear when the child's confidence has been obtained, and its nervousness is allayed by interesting it in its surroundings. The nurse should bear these points in mind when she is helping the doctor during the routine examination of the children. She should exercise the utmost gentleness in dealing with the children, and should talk to them sensibly and quietly while she is helping them to undress, interesting them in the process, and explaining that the examination is nothing to be dreaded. Once

the fear of the novelty, which is sometimes most oppressive and distressing to young children, has been conquered, there is usually little trouble, and these symptoms due to nervousness subside.

In a few instances the nurse will meet with children who are so nervous and so easily frightened that their condition verges on the morbid. Some, indeed, may be hysterical ; others may give way to fits of depression and crying, while a few, again, are a source of constant trouble and annoyance to the teacher, owing to the fact that their feelings are so little under control that they are easily provoked to passionate outbursts. Such children stand in need of great attention, and the most constant care. These facts should be pointed out to the parents, who must be told that it is not for the child's benefit that it should be encouraged to give way to its impulses and feelings. At the same time great caution should be exercised in opposing them. Punishment here, as in the case of habit spasm, is unwise. The child should be carefully trained, and it should be treated as a reasonable, reasoning being, upon whom the force of example will work more powerfully than that of precept alone. If the nurse takes any interest in studying the psychology of the child, she will find these cases which present such abnormalities exceedingly instructive and interesting, and a little experience will soon show her which cases are likely to be benefited by home and school training, and which need medical treatment and perhaps special training. The latter should be reported to the school doctor.

When we come to chorea and epilepsy, we have to deal with definite diseases which are capable of definite diagnosis, and amenable to definite treatment. The causation of both conditions is still obscure. The symptom group which they present is in each case very characteristic, and the nurse should be able to recognize the disease from a study of the signs.

Chorea minor, or Sydenham's chorea (so-called to

differentiate it from the allied forms of hysterical chorea, the type that is seen in certain mentally defective children, and the type that is progressive in character), is essentially a disease of childhood, and is usually associated with rheumatic fever or heart disease, though these are not necessary concomitants. The disease begins gradually: the child wriggles, is inattentive, "drops things," as the mother declares, and shows a variety of involuntary, jerky movements, which are more in the nature of twitches than regular convulsions. In minor cases the symptoms may at first be taken to be mere evidences of fidgetiness or habit spasm. The child cannot keep still; when it is not moving its arms or legs, it is screwing up its face in grimaces, shutting and opening its eyelids, clenching and unclenching its hands, fretting at its clothes, and wriggling about on its seat. The general health is usually impaired; choreic children are pale and badly nourished, easily fatigued, sleeping badly, and unable to do their school work properly. As the disease advances, the muscles of the eyes and tongue are involved, so that a squint develops, or the child is unable to pronounce its letters properly. When the child holds out its hand with the fingers spread out, it is usually easy to observe a fine tremor in the fingers. The muscle tonus is increased so that the knee-jerks are readily elicited, and the children are apt to start and to get twitchings when they are spoken to, or when their attention is suddenly directed to some object.

Such children should not be allowed to attend school. Chorea, although it is a condition which is generally very amenable to proper treatment, may be made much worse if the child is allowed to remain at its work. The duration of the disease is generally from two to eight months. No child should be permitted to resume its normal work after an attack, unless the fingers are quite steady, and the fine tremor has disappeared. It is well to point out to the parents that

neglect of a case of chorea may mean grave trouble in the future. The child's heart may be permanently injured, and its mental condition as well. Nor must it be taken for granted that a child cured of chorea is normal in every way. Relapses of the disease are very frequent, and great care is needed to prevent overstrain in such children either by work or play. The diagnosis is usually easy, especially when there is a history of rheumatism; but the nurse should always draw the doctor's attention to such cases, so that a thorough examination may be made. Choreic movements sometimes show themselves in children as the result of fatigue and overstrain. Much writing or drawing, or attention to any work that involves strain on a particular set of muscles, may occasion twitchings in that group of muscles. The cramp that some children get in the hands and fingers, and which is analogous to writer's cramp in older people, is an example of such a condition. Rest and a change in the set work should be the treatment here, but the onset of the twitching is a sign that the child's health is below par, and the doctor should examine the case and give the parent or nurse definite instructions.

In epilepsy, we have a condition characterized by frequently recurring convulsions, preceded, usually, by a definite feeling of uneasiness—the so-called “aura”—and accompanied by unconsciousness. The ordinary epileptic attack hardly needs detailed description to a nurse who is familiar with her work. When the child comes to school, the teacher is usually told that it has had epileptic fits. If the attacks develop after school life, the definite character of the convulsions is sufficient to enable the nurse to identify them. Two types are described—the so-called “petit mal,” and the “grand mal.” In the former, which is perhaps much more frequent in school children than is generally accepted, the characteristic convulsions may be quite absent. The child gets dazed, twitches a little, and loses con-

sciousness ; it may be for a mere second or for a longer period. It may complain of a feeling of dizziness before the attack, and suffer from periodical attacks of forgetfulness or from what the teacher or parent calls "fits of absent-mindedness," during which it does strange and weird things. Absent-mindedness in a child denotes some morbid condition that should be promptly investigated. It may be due to mere inattention in a few cases, but much more commonly it is a sign of fatigue or of epilepsy. At any rate, the parents' or teacher's diagnosis of absent-mindedness should not be summarily accepted, but the child should be reported to the doctor for further examination.

Grand mal is the ordinary attack of epilepsy. The child feels dizzy, falls down suddenly, contorts its limbs and face in convulsions, foams at the mouth, bites its tongue, rolls its eyes about, and is unconscious. After a while the convulsions cease, and it either regains consciousness or more commonly passes into a deep sleep. During the attack the urine and fæces may be voided—and the child may injure itself seriously unless care is taken. The treatment during the attack should be to take the child into a vacant room, away from the other children, as soon as possible. Its neck clothes and any tight stays or laces should be loosened, and a pencil or cork put between its jaws to prevent its tongue from getting bitten during the convulsive movements of the lower jaw. Beyond this it is scarcely necessary to do anything more except to take care that it does not injure itself by knocking its head or limbs about. Accurate note should be taken of the onset of the convulsions, their nature and duration, and the resulting stages, and these notes must be reported to the doctor. The child must be taken home as soon as possible after the attack, and put to bed, since rest is desirable for some time afterwards. The parents should be urged to seek medical attention as soon as possible, for a great deal may be done for the child

by proper treatment. Epileptic children are unfitted for a general class. They should be educated in special schools, where special attention may be paid to them. Weak-mindedness is a common feature in the disease, and the possibility of frightening the other children in class when an attack occurs, must always be remembered and guarded against. For these reasons it is better to exclude them from school, and to send them to special institutions. If an epileptic child is under medical treatment, and the attacks are infrequent there is no harm in allowing it to attend school, provided it is otherwise normal and not weak-minded; but in such a case the teacher should pay special attention to it, and the greatest care should be taken not to subject it to any strain.

With organic disease of the nervous system the school nurse will have little to do. Cases of paralysis have been dealt with under the heading of "deformities." Cases of muscular atrophy—the large class of so-called "dystrophies"—are sometimes to be met with in their initial stages, but the diagnosis is always difficult, and little need be said here about the characteristics of the various types. In the regular routine examination to which school children are now submitted, these conditions will usually be detected, and the nurse will be told by the doctor what they are, and what instructions should be given to the parents. With hysteria and the mental aberrations met with in children it is equally unnecessary to deal.

CHAPTER XV

SOME CONSTITUTIONAL CONDITIONS

THERE are certain diseases which it is convenient, so far as the school nurse is concerned, to group together, not because they have anything in common, perhaps, but because they present certain features in their symptoms which may be dealt with in one chapter for the sake of avoiding repetition. While it is usual to speak of these conditions as constitutional diseases, it must be remembered that three of them at least are due to specific organisms.

The four conditions which will be dealt with in this chapter are tuberculosis, syphilis, rickets, and rheumatism.

Tuberculosis.—By this term is meant the infection due to the presence of the tubercle bacillus—a condition which may be localized or generalized. The acute general infection is one of the most fatal diseases which is met with, and is fortunately rare, so that the school nurse may never see a case, although her hospital experience will doubtless have familiarized her with its course. The tuberculosis we meet with in the schools is generally a local condition, due to the infection by the specific bacillus of some organ or tissue. The most common form in which it is seen is tuberculous glands. These may be observed most frequently in the neck, but may be in the groin, in the axillæ, or above the clavicle. Generally a bunch of glands is affected ; the skin, in the early stages, lying over them, is movable,

and the glands themselves are painless and not fluctuating. As the inflammation within them progresses, they may suppurate so that the skin becomes red, and an abscess points, resulting in a sinus. When the disease attacks a bone, a similar sequence of events ensues, and the sinus leads down to what is called "carious bone." Tuberculous disease of the hip, shoulder, wrist, spine, knee, and ankle are probably the most frequent forms of joint tuberculosis met with among children, and as they all present certain common features, it is sufficient to take one typical case to illustrate them all.

A child with tubercle of the knee complains of some stiffness and vague pain in the joint. Probably there is a history that at some remote period he has "strained his knee," and the symptoms are ascribed to this injury. He throws most of his weight on the other leg, and limps, perhaps quite unconsciously, so that when he is told to "walk properly," he does so without complaint. The pain, which at first is very vague, may grow worse at night when the limb is warm in bed. The stiffness tends progressively to increase. If the limb is now examined, it will be found that the knee is slightly swollen; the natural hollows are filled up, and the leg is flexed upon the thigh. The joint may be moved, but careful examination will usually show that there is a spot where pressure is accompanied with marked tenderness. In other cases the child keeps its knee stiff so that it cannot be freely moved, while the attempt to do so causes pain. The affected knee is slightly—often markedly—hotter than the other knee. The skin over it may be tense and shiny, and the thigh above is wasted and smaller than the other thigh. We have thus local heat, pain, and tenderness, swelling, limitation of movement, and wasting—all signs of inflammation in the joint. Such inflammation may, of course, be due to many causes, but where the condition is of several weeks' standing, and is slowly progressive

in a child, the probability is that it is a case of tubercle. The definite diagnosis must, of course, be made by the school doctor, who will have to consider all the rest of the possibilities ; but when the nurse notices these symptoms, she should report the case to the doctor as one of probable tubercular disease of the joint.

Tubercular disease of the bowels and tubercle of the lungs or consumption are very often said to be present in a child. As a matter of fact, both are rare among school children, consumption being really one of the rarest diseases met with in children, since only about half per cent. of all children found defective suffer from it. Even this estimate probably errs in overestimating the number of children afflicted with the disease. Most cases of "consumption" in children are cases of bronchiectasis, and the definite diagnosis of tubercle of the lungs is only made when the bacillus is found in the sputum. Where a child has a persistent hacking, dry cough, sweats in the early morning as it lies in bed, loses flesh, is anæmic, and suffers from a want of appetite while it has enlarged neck glands, and spits up purulent phlegm, it should be suspected of having consumption and reported to the doctor. Usually it is found that such a child has a condition of marked dilatation of the bronchi ;—bronchiectasis, but it is customary to examine the sputum of such children as a matter of routine. If tubercle bacilli are found in the sputum, the child must be excluded from school, and the parents must be told how to avoid infection. A proper spittoon should be provided for the child, or if it uses a handkerchief, the latter must be separately washed, or, better still, it must be burnt. For that reason the parents should be told that it is possible to provide the child with cheap paper handkerchiefs, which can easily be burnt. They should on no account be thrown away, since in that case the sputum dries on them, and the bacilli are dissipated by the wind and dust. The child should sleep alone and not with the other children, and

should be as much in the open air as possible. The windows of the room in which it sleeps should be open night and day, and since parents are under the impression that this is the surest way to make the child catch a cold, it must be explained to them that there is no fear of such a contingency if warm night clothing is provided. The nurse can do much good work in this direction by simple health talks. If there is a back-garden, and a possibility of erecting an outdoor shelter for the child, she should impress on the parents the advantages of outdoor treatment. Often it is impossible to send the children to proper country sanatoria, though there seems a likelihood, now that we are going to get state insurance, that better provision will be made for these children. In the circumstances every opportunity should be taken to see that the child gets as much fresh air as possible, with due care to avoid infecting the other children or members of the family.

Abdominal tuberculosis is equally infrequent. It is found in younger children, and the main symptoms are swelling and distension of the abdomen, diarrhoea, cachexia, and wasting, and a rise of temperature in the evening. The diagnosis is difficult, and can only be made after careful examination. A child with tubercular peritonitis must be excluded from school, and must have prompt medical treatment either at home or in a sanatorium or hospital.

Tuberculosis of the ears and skin sometimes occurs, but the diagnosis is not easy, and should be left to the doctor. Tuberculous diseases of the fingers are not uncommon in children attending the infants' classes, though it is decidedly rare among older children.

All these varieties of tuberculosis stand in need of active and persevering treatment. The children should not attend the ordinary classes, but should go to a special school; better still, they should go into the

country, or to the seaside, and for a time at least have no indoor schooling at all. In course of time we shall probably follow the continental example, and have outdoor classes for such children, or school camps, where they can live in the open air for the whole week, and get the full benefit of fresh air without losing any of the advantages to be obtained from school teaching. It is only in this way that the disease can be radically fought. To send a child to hospital for operation, and to bring it back into its old and vitiated surroundings, is merely to tinker with its complaint, and to run the almost certain risk of recurrence in a worse form.

Rickets.—The cause of this exceedingly common disease is as yet unknown. Probably it is due to the action of a specific microbe, but we have no definite evidence to prove this supposition. We know that the disease is more common in badly fed and underfed children, but no class is exempt from it ; and while the worse effects are undoubtedly seen in children inhabiting the slums, the children of well-to-do parents sometimes exhibit the signs of the disease in a marked degree. Errors of diet are perhaps responsible for a great many of the complaints from which young children suffer, and the school nurse should devote some attention to the question of food and feeding, so as to be in a position to advise the parents in cases where she notices that the children get bad and scanty food. But it is well to point out that rickets is not due solely to bad feeding. There are other concomitant causes which are at present unknown, or at least unproved, and before we have learned much more about the condition, we are not in a position to dogmatize about its causation.

The effects of rickets are seen most commonly in the various bony deformities which are met with in children in the infants' classes. Knock-knee, lateral

curvature, angular curvature, bowed legs and arms, are perhaps the most common obvious signs. Inspection of such rickety children will soon reveal the fact that it is not merely the bony skeleton that suffers. The effects are best seen in the bones, owing to the fact that the softening induced by the disease and the rapid growth at the extremities give rise to deformity and enlargements of the ends of the bones, to beading of the ribs—leading to the well-known rickety rosary—and to asymmetry of the face. But the muscles, the skin and hair, the teeth, and the other organs of the body suffer almost as much. The musculature of rickety children is usually weak and slack. Sometimes this weakness is so well-marked that the mother declares the child is paralyzed. They are also very prone to catarrhal infections. Bronchitis, catarrhal inflammation of the bowels, and the acute exanthematous diseases find the rickety child an easy victim.

The disease, as such, is not amenable to any sort of specific treatment, and all that can be done is to keep up the general health of the child, to improve its nutrition, to guard it against infection from various sources, and to correct the deformities produced by the disease. It is in the last direction that the nurse will be chiefly useful. By pointing out to the parents the dangers which may result if the child is left untreated, she may induce them to seek early advice when the deformities can be corrected without much difficulty or trouble, owing to the relative softness of the bones. Later on, when the bones are “set,” it is much more difficult to deal with the case, and the results are not so good.

Late rickets is sometimes met with in older children. The form known as scurvy rickets, which is a definitely nutritional disease, occurs very rarely. In achondroplasia there is a permanent under development of the skeleton; the child never grows bigger and remains a

dwarf. Achondroplasics are common in large cities. In London, for instance, many can be seen in the streets. They are usually quite healthy, and normal except for their stunted size. In some cases where there is a definite history of rickets, they suffer from rickety deformities, and are liable to the same diseases which rickety children so commonly "catch."

Rheumatic fever is an acute specific condition, which is particularly liable to attack a child between the ages of ten and fourteen. It is ushered in by joint pains, which may, in the subacute cases, be very slight, while in the acute cases the pains may be so great that the child cries out and resents all interference. There is in such cases extreme tenderness over the affected joints, accompanied with redness and swelling. Suppuration almost never occurs, but the inflammation flies from one joint to another, so that all the joints on one side of the body may be attacked and get better, and then those of the other side may be involved. Usually the ankle or knee-joint is first affected. There is high fever, sometimes with delirium, the child wastes, and the constitutional disturbance may be great. The disease, in the acute form, lasts about three weeks, and recovery is sometimes retarded by the great prostration and anæmia that result. Rheumatism is an exceedingly dangerous disease, owing to the liability of its causing an endocarditis, which leaves the heart permanently injured, so that the children suffer from mitral disease. The large percentage of children with a valvular heart lesion owe their misfortune to rheumatic fever. The disease should therefore never be neglected, and parents should be instructed to report to the nurse or doctor every case in which the children complain of joint pains. Such pains are very often put down to "growing pains"—a dangerous diagnosis which the nurse should do her utmost to combat. No child ever suffers from growing pains. If there is pain

anywhere, it is a sign of disease in some form, and should be investigated. Fatigue pain may be due to flat foot or a trivial sprain of the muscles, but habitual pains in the joints, coming on in the evening or after exertion, are usually due to mild attacks of rheumatic fever, which are overlooked, but which may permanently injure the heart. Such children should be sent home and made to rest in bed until the pain has quite disappeared. Medical advice should be sought, and the heart thoroughly and systematically examined. Cases of acute rheumatism, of course, attract notice through the severity of the symptoms. It is the subacute, mild case in which the child goes about and does its work, perhaps with a certain amount of lassitude, and with some complaint of joint pain, that does the mischief in the majority of cases.

The manifestations of *Syphilis* in school children with which the school nurse will meet are almost invariably those of the congenital type. Very rarely a case of primary chancre, due to contamination with some foul pipe, drinking-cup, or utensil used by the parent afflicted with the disease, is met with, but these cases are so rare that they must rank as curiosities. A hard ulcer with indurated edges, especially when it occurs on the lips or face, in a school child, must be regarded with suspicion, and it must be a rule with the nurse, whenever she has examined a child with ulceration or discharge, to disinfect her hands carefully. This is not a precaution to be taken because there is a likelihood that the case may be one of primary syphilis; it is merely the routine cleanliness which the nurse should cultivate to the fullest extent.

In school-going children, congenital syphilis is seen in the association of three or four sets of symptoms, which may all be put down to one cause—an early interference, by the inflammation set up by the disease, with the delicate growing structures of the young tissues. The effects of such interference are seen in the teeth,

which present the well-marked Hutchinson's deformity (see chapter on the teeth), in the eyes, in the shape of interstitial keratitis, iritis, and choroiditis ; in the ears, in the form of gradual progressively increasing deafness ; in the skin, which is affected by various rashes ranging from pemphigus (in which there are bullæ or blebs) to a papular rash, a psoriasis, or a roseola ; in the nose and throat, which are afflicted with a chronic catarrh, and in the bones, which show various deformities. Weak-mindedness is very often due to congenital or inherited syphilis. Hydrocephalus and dilatation of the veins of the scalp are often met with in these children, and lesions of the internal organs are not uncommon. The main feature in the syphilitic child of school-going age, besides the occurrence of one or more of these signs, is the anæmia, which is usually accompanied by a degree of malnutrition which evokes comment when the child is first seen.

Such cases are easily spotted by the observant nurse, and should be reported for treatment. The condition is a serious one if it is disregarded, for the effects of untreated syphilis may be very grave, especially so far as the eyes and ears are concerned. Many children do not reach adult life when they are the victims of inherited syphilis. Those who attend school are very liable to attacks of acute fever, or to any infection, for, like rickety children, their vitality and powers of resistance to infection are very low. The parents should be urged to take these children to the doctor, and to attend carefully to the treatment prescribed. With proper attention to the diet and health of the child, the disease may be kept in check, and may be prevented from producing any marked degree of deformity by ulceration or scarring. It is imperative that the utmost care should be paid to cleanliness and the general rules of hygiene. The discharges from any ulcerating surface in such children should be burned, and should never be allowed to come

into contact with other children. Where such discharge is present, it must be promptly reported to the doctor, who will say whether or not the child is to be excluded from class. In general, it is not necessary to exclude the children suffering from hereditary syphilis. Where, however, the ear and eye signs are so marked that special treatment is required, they should be referred to a special class, and not be permitted to sit with the other children.

CHAPTER XVI

MENTALLY DEFECTIVE CHILDREN

A "MENTALLY defective child" has been defined by Act of Parliament as "one who, not being imbecile and not merely dull, is defective by reason of mental defect, incapable of receiving proper benefit from the instruction in ordinary schools, but not incapable . . . of receiving benefit from instruction in special classes or schools." This definition is elastic, but, at the same time, it is a fairly safe one, since it excludes the idiot, the obviously insane child, and the child who is merely dull, backward, lazy, and stupid. The first two classes are rarely mistaken by the school nurse; their deficiencies are too patent. But the dull child is very often classed as mentally defective by teachers and nurses alike, simply because he demands more care and attention than the average scholar. The child with tonsils and adenoids, who breathes through his mouth, and has a vacant, stupid expression of face, who is at the bottom of his class, indolent, careless, and with a total lack of energy, is usually not a mentally defective child; he is merely a backward child, and his slackness depends on causes which are removable either by medical treatment or by proper discipline. In the infants' department children are often set down as mentally defective when they are merely suffering from the effects of bad training, or, rather, want of training. It is worth while to pay some attention to these preliminaries, since bad habits must never be taken as proofs of mental incapacity

till they are shown to be due to defects which cannot be remedied by training and care.

True mentally defective children form, when all is said and done, a small percentage of our school-going population. Probably less than 1 per cent. of school children are mentally defective, but we have no reliable returns on which to base an estimate, and it may be argued that even this low estimate is exaggerated, and that many of the children now classed as defective are merely children who have been badly brought up. There is a marked difference in the returns from various parts of the country. In the large cities the percentage of mentally defective children is, in general, higher than in villages and small towns, but here, again, we want reliable statistics so as to be able to draw accurate conclusions. At present we are not in a position to do so, but as the subject is gradually investigated by school doctors all over the country, there is reason to hope that we shall soon possess enough data for a more or less definite discussion of the subject.

The causes of mental defectiveness are various, and it would take too much time to deal with them all at this stage. Heredity plays, undoubtedly, some part: mentally defectives breed mentally defectives. But it is not only in that manner that mentally defective children are evolved. Through defective physical conditions in the parents, children may be born with weakened intellects, and although it is not possible to say precisely what these adverse physical conditions are, we know, through studying the history of mentally defectives, that there is usually some hereditary taint which underlies the condition. Epilepsy, insanity, alcoholism, disease of the nervous system, tuberculosis, debility caused by acute disease, and degeneration occasioned by bad social and hygienic conditions, have all been regarded, and probably with a certain amount of truth, as antecedents in the parents which predispose to mental defectiveness in the offspring.

In some cases, however, we must look for other causes. A mentally defective child may have perfectly normal parents, but on inquiry we find that the mother, during pregnancy, suffered from a severe illness; that the child sustained some injury during birth, or that, shortly after birth, it was attacked by some disease, such as scarlet fever, or the so-called "infantile paralysis," or some other disease of the nervous system. Scarlet fever may lead to deaf-mutism by causing disease of the ear, and other acute disease during early infancy may give rise to complications which are equally serious, and which may produce permanent injury to the child both in mind and in body. The Royal Commission on the Care and Control of the Feeble-minded, appointed in 1904 to consider the whole question of the mentally defective, reported that, in a very large number of cases, there is a history of mental defect in the ancestors of such children; in other words, that the large proportion of cases were hereditary, and only a small proportion accidental. A few authorities consider that "the frequent transmission of feeble-mindedness by inheritance is not proved . . . and that the organic defect of brain which underlies feeble-mindedness may often be the result of external influences which, during childhood, affect the growth of the brain injuriously" (Dr. Mercier's evidence before the Commission). The Commissioners favoured the opposing view, that feeble-mindedness is usually spontaneous in origin, and not due to influences reacting on the parent, and that it tends to be inherited. The relation between mentally defective children and parents who are chronic alcoholics is still a moot point, but there seems to be a consensus of opinion that habitual drunkenness in the parents is a factor in the causation of mental defect in children.

The general rule is now to divide all mentally defective children into two great classes: (1) Those in which the condition is presumably due to primary conditions—

in other words, those in which the child is born with a mental defect ; and (2) those in which the defect is acquired, and is secondary or accidental, following on some injury or disease.

Before dealing with these various types, it is necessary to give some details regarding the signs which, on examination, are usually to be found in such children. When describing these children, medical men make use of the term "stigmata of degeneration." These stigmata, or signs, are sometimes found in children who are by no means mentally defective, but who are, to all intents and purposes, normal children ; but one or other is always, or nearly always, present in a mentally defective child, and is usually more marked than when it is seen in a normal child. We distinguish head, ear, eye, mouth signs, and finally signs found in the extremities and in certain of the bones. The head is variously shaped. Some mentally defective children may have unusually small-sized heads—this is the microcephalic or small head type—others, again, may have abnormally large heads—the macrocephalic type. In others, again, the head may be unequally compressed, so that, when it is viewed from above, one side seems more developed than the other. In such children there is usually, though not always, a mal-development of the face as well, and the child is said to have facial hemiatrophy or asymmetry (inequality). The ear may be deformed, so that it is small, nearly round, without a proper lobule, quite straight on top instead of being curved, angular, or flattened. A large number of varieties of ear signs have been described, but it is sufficient to state that the ear is not usually normal, and a comparison with the ears of other children of the same age in the class will readily enable the nurse to distinguish the differences which are often slight in some cases, and very marked in others. Below the eyebrow are often to be found ridges of skin, which slope downwards, and reach as far as the internal angle

of the eye. These loose ridges are known as "epicanthic folds," and may be temporarily removed by pinching up the skin over the nose. Mentally defective children very often have a squint, and they may show the phenomenon known as "nystagmus"—an oscillation of the eyes which is elicited when the child is asked to look steadily, without moving its head, at the nurse's finger, which is passed slowly up and down in front of its face, some two feet away from the eyes. It will then be seen, when nystagmus is present, that the eye does not follow the movements of the finger steadily, but jumps, as it were, suddenly up and down, or from side to side. Sometimes this movement is only elicited when the finger is moved round in a circular manner.

The palate of a defective child sometimes presents a markedly high and acute arch, which has been likened to an inverted letter **V**. The palate may be cleft, or the uvula split, the teeth are ill-developed, and the jaws project, while there may be an abnormal amount of pigment in the mucous membrane of the mouth. The fingers are sometimes blunted, with the thumb curved inwards, and the last joint of the little finger bent inwards towards the ring-finger. In cretins the hand is characteristically short and blunt, and has been called the "spade hand." The hair is often brittle, the skin rough and dry, sometimes with many naevi scattered on it. Such children are very often inveterate nail-biters, they are of poor physique, develop late in life, and acquire various bad habits. They often suffer from rickets; the legs are bowed or curved, and the border of the shoulder-blade, which is towards the spine, is often deeply concave instead of being more or less convex or straight, as in normal children. They walk and talk much later than other children, and their speech is often very defective through stammering, or through actual inability to pronounce certain letters. They may have abnormal tastes, preferring to eat sand and lead pencils. They wet their beds and their clothes,

and may have no control over their bowels, in that case being a source of great trouble in class, while they sometimes develop mischievous propensities, which are no less troublesome to deal with.

In some children one or other of these signs will be more pronounced than in others ; but in the majority of cases the speech of the child is the most likely to attract attention at first. Some children slur their words ; some have even a language of their own, and in most cases there is great difficulty in pronouncing certain letters, especially *th* and *r*, or *s*. For these difficult consonants they substitute others, which they find easier to pronounce—a habit which is known as “lalling.” A mentally defective child who lalls, will say “ Yee tee ittil yain ops ” for “ See the little raindrops ” ; and sometimes even the final “ l ” in the word, “ little ” is left out, and “ itti ot ” is substituted for “ little horse.”

In examining a child who is said to be feeble-minded, the nurse should bear in mind the fact that there are some conditions which may cause a temporary want of attention, or of mental energy on the part of school children. It is, therefore, in the first place, necessary to see that the child, when its intelligence is tested, is not suffering from any illness. It is equally necessary to see that it is not fatigued, since bodily tiredness may, and sometimes does, cause a young child to stammer and to appear dull, although an examination of the same child, when it is not tired, will soon dispel any suspicion of defective intellect which the nurse, who has only seen the child when tired, may have previously entertained. Having excluded illness and fatigue, examine the child for the signs of stigmata already mentioned. You may often fail to find them in children who are undoubtedly mentally defective, but they are usually present. On the other hand, you may meet with them—and not so rarely as is commonly supposed—in children who are otherwise normal, and who are certainly not feeble-minded. It is therefore obvious that they

furnish no sharp clue to the condition of feeble-mindedness, and it is well to lay stress on this fact. There is no single sign, or group of signs, which, apart from the careful investigation of the child's mind, can prove that the boy or girl is feeble-minded. It is only by slow, careful, and methodic examination that feeble-mindedness in a child can be certainly diagnosed, and this is especially the case when the child is an infant. Bear in mind always that some children may develop late in life, and that others may have learned bad habits at an early age. Such children are not necessarily feeble-minded; they are, perhaps, not quite normal children, but they can be cared for and taught in the ordinary school, and do not need special institutions for their training.

There are certain definite types of feeble-minded children described, and the school nurse should know the simple distinctions between these various forms.

The *Cretin* is a child who suffers from a peculiar condition known as "congenital myxœdema." An examination of such a child shows that it possesses no thyroid gland. This gland, which lies in front of the trachea and in a normal child can easily be felt, is one of the most important in the body, owing to the fact that it possesses a powerful internal secretion. When this secretion is in excess, as it is when the gland is enlarged or inflamed under certain conditions, it produces definite symptoms. The pulse-rate rises rapidly, the heart becomes irregular, and the nutrition is impaired. When, on the contrary, the secretion is deficient, as in cases where the gland is absent as in cretinism, a train of symptoms, the direct opposite of these, is produced. The child's skin and hair becomes coarse, rough, and dry; the nails and hair are brittle; the child appears to be a mass of fat and flabby tissue. Its belly protrudes, its face is flattened, its tongue may protrude, and it is indolent, lazy, and easily tired. It has a peculiar expression, which is difficult to describe in words, but easily known when once seen; and its voice is grating

and yet not loud. The hands are spade-like, the fingers blunt and clumsily formed, and the whole child has a fat, clumsy appearance. Such children are very often, though by no means always, mentally defective. Their attention wanders, they cannot be taught simple things, and they are apathetic and without any energy. The treatment of the condition is very simple. By giving the child thyroid extract, all these symptoms are removed—the child loses its heavy, bloated appearance, its voice becomes softer, its skin and hair smoother and finer, and after a few months' treatment it improves to a wonderful extent. The thyroid must, however, be continued throughout life. When it is stopped, the tendency to increasing weight and apathy will return. Unfortunately, where such children are definitely feeble-minded, the thyroid treatment is not so successful, but it should always be tried.

The so-called *Mongolian idiot* is a definite condition in which feeble-mindedness is a constant symptom. "Mongols," as they are termed for brevity's sake, are children who have peculiar physical characteristics, best seen in the face and hands. The typical Mongolian face, as the name implies, is similar to that of an inhabitant of China or Thibet—of a member of the Mongolian race, although the similarity is not often so striking as it is said to be. The eyes of such a child seem to be closer to the surface of the cheeks than they are in other children; the nose is depressed, so that it has hardly any bridge. The facial bones are often badly developed, and the head is deformed and irregularly shaped. The hands are spade-like, the little finger curved inwards, and the palms deeply furrowed. Similarly, the feet are squat and blunt, and the soles of the feet crossed with deep furrows. The hair of such children is often brittle, the skin coarse and rough, often remarkably dry, and peeling in small flakes. The palate is usually high, and the scapula, or shoulder-bone, has its spinal border much more curved than in a normal child. The

eye signs already described, are to be found in these children, and many of them have eye diseases as well, while, as a rule, they are much more liable to infectious and acute diseases. A Mongolian child is definitely feeble-minded. They are said to be more fond of music than ordinary children, and may develop a particular aptitude for one kind of work, while they display an utter apathy in other subjects. They usually die before attaining the age of puberty, and the mental defect persists in those who reach adult life. Little can be done for them in the way of treatment, and these children are less to be classed among feeble-minded children than among those who are really idiots. They should be sent to a special school as soon as their condition has been definitely diagnosed.

The other types of feeble-mindedness are those in which the relatively small head of the child is very striking—the so-called “microcephalic”—and those which are dependent on some disease or injury during infancy. Among the latter are children who are mentally weak, owing to an attack of paralysis, acute fever, or through an injury to the skull. The condition known as “hydrocephalus,” or water on the brain, in which the bones of the head are much expanded, and the child’s head seems utterly disproportionate to its small body, is not uncommon: the children may, or may not, be feeble-minded. When they are mentally defective in such cases, very little is to be done for them. Nothing that the surgeon or physician can do can make them better, and their case is as hopeless as that of the microcephalic, whose brain cannot be expanded or stimulated to growth by any means we know of. The nurse should bear in mind that many children may possess small or large heads without being in the least feeble-minded. It is only when with such a characteristic other peculiarities are noticed that the case should be regarded as suspicious. In the feeble-minded child with a large skull, the face is usually very small and

undersized, as if it had not kept pace with the growth of the skull. Microcephalics and macrocephalics may show a very wide range of intellectual feebleness. Some are much more amenable to teaching than others, and may be readily taught. Others, on the contrary, need a great deal of care and attention. A feeble-minded child of the latter class, is a source of annoyance and irritation to an ordinary class, and it is therefore desirable that these children, as, indeed, all who are definitely feeble-minded, should be removed to a special school or institution, where they can receive individual attention. In some cases of the acquired type, where the feeble-mindedness is due to disease, various deformities are met with. These should be treated wherever possible by appropriate surgical or orthopædic methods.

Feeble-minded children are now sent to special schools or colonies, where they can receive the benefit of special training, which may enable them to earn their own livelihood in some cases. Special nurses are employed at these institutions. A great deal of care and attention is necessary in looking after the children, and the nurse will have special duties, which need not be detailed here, as they do not fall within the scope of the ordinary school nurse's work. We may add, however, that in examining or dealing with feeble-minded children in the ordinary schools, while they are prepared for the doctor's inspection, or when there is occasion to deal with them in any way, the nurse should be gentle and cautious. Such children are often very sensitive, and it must never be imagined that they are idiots in the strict sense of the term. Above all, no force or coercion must be used in dealing with them. They are often exceedingly trying with their dirty and careless habits, but the school nurse should learn to bear with them, and should remember that they are not responsible for what they say or do, and that she may be able, by judicious and tactful management, to work wonders with them.

CHAPTER XVII

INFECTIOUS DISEASES

ALL infectious diseases are caused by the entry into the body of certain specific organisms (bacteria). These organisms are exceedingly minute bodies, which are only recognizable under the microscope, and which have certain definite properties. They are probably of vegetable nature, and usually multiply very rapidly, when the conditions favourable for their growth are present. By a specific organism is meant a bacillus which, when introduced into the body, will only set up a certain definite disease. Thus the organism which causes diphtheria will only produce that disease and no other : that of tubercle only tuberculosis ; that of typhoid only typhoid. In many cases (smallpox, scarlet fever, measles, mumps) the specific organism has not yet been isolated, but the evidence in favour of these diseases being due to bacteria is very strong. Infectious diseases may be transmitted in various ways. When the organisms float about in the air, in the dust, and are carried from one place to another by every current of air, the disease is said to be air-borne, or directly infectious. In others, the organisms are borne by water, milk, or earth, while in others, again, the disease is transmitted by actual contact with the patient. The last class is said to be contagious. Many skin diseases are merely contagious. Acute infectious diseases are both contagious and infectious, and it is with these only that we are at present concerned. In some,

notably in tuberculosis, leprosy, and typhoid, the infectivity is slight ; in others, notably in scarlet-fever and smallpox, it is very great.

In dealing with these conditions, certain terms are employed which should be perfectly understood by every nurse. The following are the chief :

Incubation Period.—This means the stage between the exposure to infection and the onset of the first symptoms, which show that the disease has actually taken hold of the individual.

Immunity.—By immunity is meant, broadly speaking, a condition of antagonism to the disease. A person who is immune to a specific disease may expose himself to infection without contracting the disease. In general, the acute specific fevers, once contracted, confer a certain degree of immunity upon the individual. A child who has had scarlet fever, for example, is unlikely to get another attack. This rule does not always hold, and in by no means a small number of cases the immunity conferred by one attack of measles or scarlet fever may be so small that the child suffers again from the disease at a later period, when it is once more exposed to infection. A degree of artificial immunity may be established by means of vaccination or inoculation, as in smallpox and enteric fever, but such immunity does not, as a rule, last very long ; and hence it is necessary to safeguard children who have already been vaccinated once by revaccination when there is a possibility of them being exposed to smallpox infection in case of an epidemic.

Isolation.—A patient suffering from infectious disease is isolated—that is to say, he is placed apart from his fellows, where he runs no risk of communicating the disease to others. Those who have been in touch with him before he has been isolated are placed in quarantine, which is a modified kind of isolation. Isolation is necessary so long as there is risk of infection. Quarantine, on the other hand, is only necessary for a period

long enough to prove that the quarantined individuals are not going to have the disease. In general, for a few days longer than the incubation period of the disease.

Disinfection.—By disinfection is meant the process of killing bacteria and thereby preventing them from setting up the disease. It is unnecessary to discuss here the various ways in which this is done, since they are familiar enough to every trained nurse.

Toxins.—The bacteria produce disease by manufacturing within the body certain substances which are poisonous, and which are known as toxins. The body attempts to counteract these substances by manufacturing certain other substances which antagonize the poisons, and which are therefore known as antitoxins. Nowadays, some of these antitoxins are prepared in the laboratory, and are injected into persons exposed to infection, in order to confer a certain degree of immunity. The symptoms which are characteristic of the various infectious diseases, are the direct result of these poisons circulating in the body. They reach their maximum gradually, and when the body is unable to resist them the patient dies. If, however, the patient is able to resist infection, the toxins are gradually neutralized, and after a varying period, from the onset of the first symptoms, the poisonous products are efficiently counteracted, and the disease is said to have attained its critical period. This crisis is followed by the period of defervescence, when the symptoms lessen, and convalescence sets in. With the onset of the crisis, however, the disease has not been rendered harmless. It is still an infectious condition, and the risk of infection may persist during convalescence.

It is of the utmost importance that the school nurse should be acquainted with the commoner varieties of infectious disease, so as to be able to distinguish them, and to draw the doctor's attention to such children as may present suspicious symptoms. We shall therefore give in this chapter a brief account of these conditions.

Those most commonly met with among children of a school-going age are measles, German measles, scarlet-fever, whooping-cough, mumps, diphtheria, chicken-pox, influenza, and the common cold. Much more rarely the following may be observed: erysipelas, typhoid fever, smallpox, spotted fever, and the rarer conditions resulting from certain uncommon bacterial infections.

Measles.—By measles is meant an acute infectious febrile disease with a characteristic rash, and inflammation of the mucous membranes of the mouth, nose, eyes, and respiratory tract. It is a very common disease, and occurs in epidemics, which are particularly severe among young children, although persons of all ages may be attacked. In children it is a particularly fatal disease; nearly 98 per cent. of all deaths in this country from measles are among children below the age of ten. The disease is particularly frequent in summer and midwinter, June and December being the months in which the largest number of cases are recorded. When properly treated, the disease is fairly easily controlled, and the large mortality from it among young children is, to a certain extent, due to neglect. The incubation period is usually stated to be about ten days. In many cases, however, the characteristic eruption appears within a week after the child has been exposed to infection, while in others it may develop as late as a fortnight. A safe quarantine period is therefore from sixteen to eighteen days. The main symptoms are feverishness, a feeling of sickness, and weakness accompanied with cold flushes; or in infants, convulsions, catarrh of the mucous membranes, conjunctivitis, and the appearance of the characteristic rash. This appears on the fourth day after the initial symptoms have set in, usually first on the face, and later on on the body. The rash consists of reddish-pink spots or papules, slightly raised above the skin, and often running together, forming semi-circular or crescentic groups, between which an area of normal white skin is seen. Before the rash

appears, however, it is possible to diagnose the case. When cases of measles have been found to exist among the children in a school, the nurse should be on the lookout for these initial signs, and should examine children who appear ill, or who suffer from "a cold in the head." A valuable sign is the early conjunctivitis that is to be seen. This is first observed at the corners of the eyelids, spreading from there on to the eyeball itself, and causing a feeling of warmth or slight smarting in the eye. The other sign is the presence of the so-called "Koplik's" spots. These are little white raised spots, not unlike rice-grains in appearance, which are seen on the gums and in the mouth. They appear before the rash, and are characteristic of the disease in its early stages.

In addition to these symptoms, there may be headache, vomiting, and high fever. The tongue is generally furred with a white coating, and the child is constipated. Usually there is some bronchitis. If the disease is allowed to remain untreated, or in severe cases, various unfortunate complications may arise. These are pneumonia, septic conditions of the mouth, bad ophthalmia, disease of the ear, and inflammation of the meninges. If the case is treated early, most of these complications may be averted. The rash gradually disappears—three or four days after its eruption—the temperature falls and the skin peels in thin flakes (desquamation), while the catarrhal symptoms subside. The treatment, so far as the school nurse is concerned, is simple. The child should be promptly excluded from school and isolated—either at home or in a fever hospital. The period of isolation is usually three weeks. When the catarrh has stopped, all the discharges have ceased, and when the peeling is no longer observable, the risk of infection has passed, and the child may be allowed to attend school once more.

German Measles.—This is an acutely infectious disorder, which may also occur in epidemics, and to which

school children are particularly liable. It commences, sixteen or eighteen days after the child has been exposed to infection, with a feeling of malaise and sickness, often with a headache, which is succeeded very quickly by a slight, diffused rash, which closely mimics that of measles, although the spots are not so large, and generally do not run together, but remain separate, although they may be very close to one another. There is usually some bronchial and nasal catarrh, but the conjunctivitis is generally very slight, while the fever is rarely raised more than a degree or two. A point of importance is the swelling of the glands, especially of those at the back of the head—the occipital set—which is sometimes very pronounced, and which is a good distinguishing sign between ordinary measles and rubella, or German measles. In measles these glands are hardly ever swollen. The absence of the characteristic Koplik's spots in the mouth is another distinguishing feature. Care must be taken to distinguish the disease from the much more important scarlet-fever. In this the rash is not raised, and the constitutional disturbance is more severe, even in slight cases. The quarantine period is three weeks ; the period of isolation about the same. The disease usually yields readily to treatment, and the complications are few and not so important as in measles.

Glandular Fever.—This disease, although usually considered a rare one, is not uncommon in school children. It is an acute infectious condition characterized by the swelling of the lymphatic glands in the neck and elsewhere. The child suffers from slight constitutional disturbance, but there may be high fever. The case should be excluded and isolated.

Scarlet-Fever.—Here we have to do with a much more important disease than either of the last two, a condition which is highly infectious, and in which the prominent symptoms are the characteristic rash, sore throat, and an inflammatory condition, in many cases, of the kidneys.

From two to four days after the child has been exposed to infection, the trouble commences, often very suddenly, while the patient is playing or working in class. There are headache, pains in the limbs and back, a sore throat, or, at least, a feeling of dryness and uneasiness in the throat, and general constitutional disturbance. In a child in the infants' department, the first sign of the disease may be convulsions or sickness, but the hot, flushed skin, and the severe constitutional signs, are usually sufficient to show that we have to do with a serious condition. When there is reason to suspect that the child has been exposed to infection, even a slight degree of malaise should be promptly investigated. It is impossible to lay too much stress on the importance of early diagnosis and treatment in cases of scarlet-fever. The disease, when neglected, is so severe and the complications so dangerous, that it is imperative that the child should be treated at the first opportunity, while the risk of infecting the other children, if a child suffering from the disease in its early stages is allowed to remain at school, is very great indeed.

Two days after the onset of the first symptoms the rash appears. In cases where the constitutional disturbance has been slight, the appearance of the rash itself may be the first sign of the disease, which attracts the attention of teacher or nurse. This rash is very characteristic. It is a densely scattered series of minute red specks, so closely congregated together, that it gives the area of skin on which it appears the look of being covered with a scarlet blush. On close inspection, it will be noted, however, that the spots do not run together. Each, in the majority of cases is distinct, and when the hand is passed over the surface of the skin, the rash cannot be felt, for the spots are not raised as in measles. The sides of the neck, the front of the chest, and the insides of the thighs are the localities where the rash, in general, first appears, and where it is best marked. In bad cases the rash may be confluent,

and even hæmorrhagic, so that it does not fade on finger pressure, while, in many cases, it may be exceedingly limited in extent. In normal cases it gradually increases in extent and intensity until on the sixth day, after the onset of the disease, it is diffused all over the body, which presents a uniform scarlet blush. On looking at the throat, the soft parts are seen to be inflamed, the tonsils are red and swollen, with yellowish patches upon their surface, and later on with sloughs or suppurative foci. The appearance of the tongue is highly suggestive. It is covered with a greyish-white coating through which the papillæ show up as bright spots of red, so that imaginative persons have likened it to the surface of a strawberry, and given it the name of strawberry tongue. The strawberry tongue is seen better when the rash has fully developed. The white coating has now disappeared, and the surface is generally bright red with the papillæ projecting above it, and presenting a much redder appearance. This is the typical strawberry condition, which is very characteristic of the disease. In addition to these symptoms, the temperature is raised, usually above 103 degrees, the urine is scanty, high coloured, and may contain some albumin, while the nasal mucosa is inflamed, the bowels are constipated, and the patient acutely ill. In favourable cases, the rash disappears about the tenth day, the symptoms gradually subside, and the skin peels in fairly large flakes, sometimes even in huge pieces, so that complete casts of the feet or hands are shed. This desquamation is best observed between the fingers and toes, and is usually completed at the end of a month or six weeks.

Scarlet-fever is an exceedingly dangerous disease, owing to its many complications and sequelæ, the chief of which are lung and heart trouble, suppuration in the ear, throat, and joints, and kidney disease. The last is, perhaps, the most common sequel, but heart disease, as a result of scarlet-fever, is not so uncommon as is generally supposed. Suppuration in the ear may give

rise to intractable deafness, which, in the case of young children, may result in deafmutism, while the joint trouble may lead to a very serious and grave deformity. All these facts make it important that the child should be attended to at the earliest possible moment. Exclusion from school is, of course, a self-evident preliminary to all treatment. The child must be at once isolated, and those children who have been in contact with it quarantined. The isolation time is generally six weeks, but no definite limit can be assigned. The usual rule is that the risk of infection has ceased when all discharges have stopped, even when the peeling has not been completed. The mistakes that are likely to be made in diagnosing the condition, are confounding it with measles, and taking the first symptoms to be due to a cold in the head. The onset of the characteristic rash ought to rectify the second mistake; some attention to the differences between the two kinds of rashes, the first. —The measles rash is raised, papular, and grouped; that of scarlet-fever in minute specks, which do not generally run together. The absence of Koplik's spots, the severe sore throat, and the localities in which the rash first appears, are also points to be borne in mind in trying to distinguish between the two conditions.

Whooping-Cough.—This, like scarlet-fever, is a very infectious disease, and one that is usually regarded as trivial by the parents—a supposition which is not warranted by the facts. The disease may be followed, as a direct sequel, by such grave complications as pneumonia, chronic bronchitis, and consumption, while emphysema is a fairly common result of an attack of whooping-cough. That being the case, it is bad policy to look upon the disease as a slight one. A child suffering from it needs isolation and adequate treatment just as much as one who has scarlet-fever; but owing to the fact that between the attacks these children are generally able to play about, since the constitutional symptoms are comparatively slight, the parents do not

give them the necessary attention, with the result that the disease is protracted.

Whooping-cough sets in, ten days after infection, with symptoms which suggest an ordinary catarrhal cold. There is a slight bronchitis, and in the beginning generally a little feverishness. Young children may also complain of headache and sickness, though both are rare. The cough comes on at an early stage, and is characteristic. It occurs in well-marked paroxysms, the child coughing violently four or five times, and then suddenly drawing in its breath in a prolonged, loud whoop, after which the expiratory coughs are started once more, to be followed by another inspiratory whoop. In severe cases this sequence of cough and whoop may continue for several minutes. The child gets blue in the face, and struggles for breath. It runs to the nearest support, and clings to it while the cough continues, and it may bleed from the nose and mouth as the result of the violent strain. The disease is comparatively a long one. It is rare that the cough ceases before five weeks from the onset, and in some cases it lasts much longer. Until it has entirely ceased, however, the child should not be permitted to attend school, as it is always liable to infect other children. Those who have been in contact with it should be subjected to quarantine for at least three weeks. Under effective treatment, and with proper care, the disease is not in itself dangerous, but the complications already mentioned must always be borne in mind, and the parents must be warned about them.

Mumps.—Like whooping-cough, mumps is regarded by the parents usually as a disease of slight significance. As a matter of fact, it may give rise to troublesome inflammation of the breasts in girls and of the testicles in boys, while it may lead to abscesses in the parotid gland, and to serious abdominal inflammation. It is an acute infectious disease, characterized by swelling and inflammation of the parotid and salivary glands,

and affecting young adults especially. Boys are more liable to it than girls, and it is rarely met with in the infants' classes. The incubation period varies from ten to twenty-five days, and the first sign of the disease is generally a feeling of uneasiness, sometimes of actual pain, in one cheek. Seen at an early stage, the child will be noticed to have the one side of its face swollen and somewhat tender. The swelling generally coincides with the limits of the parotid gland, and is therefore more pronounced under and in front of the ear, and at the upper end of the upper jaw. The glands underneath the lower jaw may also be slightly swollen. The swelling in front of the ear may become very large and acutely painful, so much so that the child may cry out with the pain, while swallowing and mastication are rendered almost impossible, owing to the tenderness and the size of the tumour. The temperature is raised a few degrees, and there are generally constitutional disturbances varying in severity, with the degree of the inflammation, which usually spreads to the other side, and attacks the neighbouring parotid gland. Sometimes, too, the inflammation may subside in the one, and a few days later reappear in the other gland. The disease lasts, on an average, a week or ten days, but the isolation should be prolonged for at least three weeks, and contacts should be quarantined for the same period, or, better, for four weeks. The condition may be mistaken for an abscess or for swollen glands.

Chicken- or Glass-Pox is an acute specific infectious disease, which is characterized by slight constitutional disturbance, and a peculiar eruption consisting of pink papules, which rapidly become converted into little vesicles filled with clear serous fluid, and which, in turn, pass into small pustules or minute abscesses that break, scab over, and finally leave small, well-marked white scars. The disease has nothing to do with smallpox, so far as we know at present. It is not inoculable, and vaccination confers no immunity

on patients exposed to infection. By no means a serious disease in itself, its complications are, in general, not important, except in the very severe cases of so-called "gangrenous chicken-pox," which are happily very rare. The importance of the disease is, therefore, likely to be under rather than over estimated, since the children recover rapidly, and, except for the scarring that results, are little the worse for their attack. At the same time the nurse should pay attention to the disease, and should be able to distinguish it, not only to prevent infection of other children by a specific case, but also to be able to exclude smallpox, a disease which is often confounded with varicella or chicken-pox.

The distinction between these two diseases is fairly easily made by attending carefully to the rash. The chicken-pox rash appears a day after the onset of the first symptoms, feverishness and slight constitutional disturbance a fortnight after the patient has contracted the disease. It commences as pink, slightly raised spots, which are elastic to the touch, and vary in size from a pin's head to a small lentil. A day or so later these papules are seen to be surmounted by a tiny vesicle, filled with clear fluid. The upper surface of this vesicle is smoothly rounded, and when it is pricked with a needle so that the fluid escapes, the wall collapses, and the elevation promptly disappears, since there is comparatively little inflammation round the base of the papule. Soon after the vesicle has formed, its contents alter in appearance; they become cloudy and then purulent, and the elevation is now classed as a pustule. Finally, this pustule breaks, a little scab forms over it, and, underneath this, healing proceeds with the formation ultimately of a shiny white scar. This characteristic eruption is seen on the body and limbs, chiefly on the front of the chest and on the back of the thighs. A few may occur on the face, while some are invariably found in the mouth, on the hard palate especially, where they are well-marked. There may be only one or two

spots, or there may be many, but there is no tendency for them to run together; the hands and feet are not commonly the seats of the eruption, and the constitutional symptoms are slight. An important point to notice is the condition of the majority of the spots. Usually, when one or more papules are seen, it is observed that the rash is papular everywhere; in other words, in chicken-pox, papules, vesicles, pustules, and scabs do not occur at the same time on the same area, the crop of spots appearing regularly, and undergoing the various changes in regular order. Usually a few enlarged glands in the neck and axillæ are to be felt. The isolation period in the disease is a week or more. When all the scabs have disappeared, the child is fit to return to school. The quarantine period is three weeks.

Although *smallpox* is a comparatively rare disease among school children in this country—so rare that many nurses have never seen a case—it is worth while to give the main features of this condition at this stage, for purposes of comparison with those of the commonly occurring chicken-pox. In smallpox the incubation period is generally twelve days, and the attack is ushered in with severe constitutional disturbances, of which shivering, or convulsions in young children, headache, pains in the limbs, and very marked backache, thirst, prostration, and heightened temperature are the chief. The rash appears on the third day, but it may be preceded by the appearance of peculiar flushes of red on the neck and thighs, which may at first raise the suspicion that the case is one of scarlet-fever. When the typical rash appears, however, the diagnosis is, in the majority of cases, fairly easy. This rash is at first, like that of chicken-pox, papular, but it affects the face, arms, hands, front parts of the leg, and feet, much more than the body. The papules are larger than in chicken-pox, and when examined by the finger, they feel firmer and harder, owing to the greater inflammation that is present. They soon form vesicles, which are quite distinct from

those in chicken-pox, since their surface is not roundly smooth, but depressed in the centre, so that they are said to be umbilicated. When they are pricked, the vesicle does not collapse entirely, owing to the amount of inflammation and œdema at its base, and also to the fact that the vesicle itself is divided into several compartments by septa within it. These vesicles soon change into pustules, and at this stage it may be observed that the patient presents three kinds of rash—spots which have recently appeared, and which are papular; others, a trifle older, which are vesicular; and others, which are still older, which are either pustular, or which are scabbed over. The surrounding areas of skin may be much inflamed, so that the swelling is very considerable. The greatest care is needed in the treatment of the disease to prevent unsightly scarring, and, of course, the most stringent precautions should be taken to prevent the case becoming a focus of infection. When a case of smallpox has occurred at a school, all the children should be quarantined for three weeks, and the school buildings should be thoroughly disinfected. The patients are free from danger to others a week or so after all the scabs have disappeared.

Influenza.—With this we may consider the common cold, although the two conditions are not the same. By influenza is meant an acute febrile disease, which is exceedingly infectious, which follows very rapidly on exposure to the specific infection, and is characterized by an inflammatory condition of the nasal and respiratory mucosa, or by heart, stomach, or brain symptoms. The common form, however, is the respiratory type. In the case of the diseases which have been discussed so far, the specific micro-organism, which is presumably the cause, has not yet been isolated. We have, however, succeeded in isolating the microbe that causes influenza. This is an exceedingly minute little fungus known as “Pfeiffer’s bacillus,” which manufactures certain toxins in the body, and these poisons

give rise to the characteristic constitutional symptoms. The incubation period of the disease is exceedingly variable. It may be merely a few hours, and it may be a couple of days. Generally it is a day.

The symptoms are equally variable, but physicians now recognize certain fairly well-marked types, according to the prevalence and severity of one or other set of symptoms. In the respiratory type, the disease starts with malaise, headache, severe pains in the limbs, rapid breathing, cough, catarrh of the respiratory tract generally, and high fever. Soon a bronchitis develops, which may lead to pneumonia. In the febrile type, the fever is the main symptom, accompanied with profound prostration. The child is very ill, but rarely complains of definite pain or discomfort. In the nervous type, neuralgic pains, together with sleeplessness and restlessness, are the main features. In addition there is an abdominal type, in which diarrhœa, sickness, vomiting, and headache are observed. The complications are many and may be severe. Influenza is a serious condition, and should never be treated lightly. The child should be sent home and properly examined by a medical man, since the diagnosis is not always easy. Thus, the respiratory type may be complicated with an attack of pneumonia, the abdominal by serious intestinal or stomach trouble. In two weeks time, if the case has run a normal course, the child will be fit to attend school without the risk of infecting its school-fellows. In general, however, it may be laid down that no child, who has suffered from an infectious disease, should resume its school work immediately on the expiration of the isolation period; it should be sent away to the country or the seaside whenever possible, to recuperate for a short time. Such after-treatment is particularly desirable in a case of influenza. It is almost impossible to safeguard contacts by quarantine in this disease.

The common cold in the head or in the bronchial

tubes is an infectious disease which is often mistaken for influenza. Usually its effects are slight, and parents and teachers do not sufficiently recognize the danger of allowing a child with a cold to remain in class and continue its work. This danger is twofold. To the child itself in the first place, and secondly, to its fellow pupils. The catarrhal condition may track down the bronchi to the lungs, and set up bad bronchitis, which may extend further, and give rise to pneumonia, while the presence of the child in the class is a source of infection to the other children. Cases of colds should be promptly attended to; usually home treatment is sufficient to cut short the attack, but the child should not be permitted to return to school until the catarrh has ceased.

Diphtheria.—We now come to one of the gravest diseases to which the school child is liable—namely, diphtheria. This condition is directly due to infection by the bacillus of diphtheria—the Klebs-Loeffler bacillus—and is characterized by an inflammation of surface tissues, resulting in the formation of distinct sloughing membranes, which are most commonly seen on the mucosa of the nose, throat, and mouth, although also on other mucous surfaces. It is a highly infectious, and, in children, an exceedingly dangerous disease, with an incubation period that varies from two days to a week, and which starts with slight constitutional symptoms in the majority of cases. In a few instances, children may be suffering from the disease in the throat, and may not complain of any symptoms at all. Only on examination the presence of the disease is suspected. In the general run of cases, however, there are definite symptoms. The child complains of lassitude, pains in the limbs, sickness, and headache, and later on, of sore throat. The glands under the jaw are slightly swollen, and the child looks pale and anæmic. On examining the throat, it is seen that one, or perhaps both, tonsils present signs of inflammation which are

characteristic of the disease. The tonsils and soft palate are red and swollen. On the former, patches of a dirty cream colour are seen. These patches are irregular in outline, and are spread over the surface of the tonsil, not contained within the crypts, as in the case of an acute tonsillitis, and have a tendency to spread upwards and sideways on to the soft palate. When such membrane is seen actually on the soft palate, the case may confidently be set down as certainly one of diphtheria. Where it is limited to the tonsil, and is small in extent, it may be difficult to make a diagnosis without taking a swab from the throat and trying to discover the bacillus with the microscope after growing it on suitable media. If the membrane, in a typical case of diphtheritic sore throat, is peeled off the tonsil with a pair of forceps, it leaves a jagged, bleeding surface, and this raw surface is soon afterwards covered with a fresh membrane. There is some discharge from the nose, and there may be slight bronchitis. Usually the temperature and pulse-rate are raised, and, in severe cases, the child is obviously very acutely ill. In slight cases the amount of constitutional disturbance may be very small ; but that does not detract from the gravity of the disease. In many of these apparently insignificant attacks, the gravest complications follow later on, the nervous system and the heart being attacked by the circulating poisons, often with a rapidly fatal result. The complications in the disease are many, and the utmost care should be taken to secure early and efficient treatment and proper diagnosis in every case which is suspicious. The final diagnosis rests on the findings of the bacterial examination, which is now made as a matter of routine. If this examination is positive—that is, if it discloses the presence of diphtheria bacilli in the portion of membrane removed—the child is now usually treated with an injection of anti-diphtheritic serum. Prophylactic or safeguarding injections of serum are also given to contacts who are quarantined for ten days or a fort-

night. The isolation period in diphtheria is variable, and no limit can be definitely laid down. The child is only free from infection when the discharges no longer contain the specific bacillus, and that can only be determined by making periodical examinations. Usually, the isolation period is given as three weeks, and, as a general rule, this is sufficient.

Children who complain of sore throat should be examined by the nurse as soon as possible, and as a matter of routine. A wooden spatula, which must afterwards be promptly burned, is used to depress the child's tongue. The examination must be done in a good light, in front of a window, and the nurse must take care to avert her face, so that she runs no risk of accidental infection through an involuntary cough on the part of the child. All cases of tonsillitis must be reported to the doctor, who will judge whether it is necessary to do a bacteriological examination or not. When a case of diphtheria has actually occurred in the school, it is even more necessary to take these simple precautions, which, if carefully carried out, will save much worry and trouble later on. Every case of sore throat should be isolated, pending the decision of the school doctor. For an account of the more common conditions, which lead to sore throat, readers are referred to the chapter on the Throat.

The rare conditions such as *typhoid*, *spotted fever* and *erysipelas*, are scarcely ever met with among school children, who are actually attending class. The reason is that the onset of these diseases is gradual in most cases, and the constitutional symptoms render the child sufficiently ill for the parents to keep it at home and seek medical aid. It is necessary, however, to say a few words about these conditions. Smallpox has already been discussed, and it is unnecessary to deal here with the rare bacterial infections which have sometimes been observed among children.

Typhoid Fever.—This is a contagious disease caused

by the specific bacillus (bacillus of enteric fever), which is chiefly spread through the patient's excretions. It is rarely observed in patients below fourteen years of age, but it may occur in quite young individuals. Its incubation period is not definitely known—it has been found to vary considerably—but an average incubation period of a fortnight is probably near enough to the actual figure, although much shorter and much longer periods have been recorded. In children the disease is sometimes ushered in by a copious nose bleeding; and nose-bleeding in a child who has not previously suffered from this symptom is always suspicious of a commencing infectious fever, and should therefore always lead to an examination. The main symptoms in enteric are great prostration, a high temperature, excessively severe headache, constipation, or diarrhœa, listlessness, and apathy on the part of the patient, an enlarged spleen, and the presence of a rash which consists in a few small lentil-shaped red papules, which disappear on pressure, and which are usually found scattered on the upper part and sides of the abdomen. The patient's tongue is dry, "with a band of dry white fur on each side, the margins, tip, and middle being clean and red." In the early stages there may often be noticed a yellowish coloration of the palms of the hands and soles of the feet. The accurate diagnosis of typhoid fever is often a matter of extreme difficulty.

Spotted Fever, or epidemic cerebro-spinal meningitis, is an exceedingly dangerous disease, which attacks young children. It may occur in epidemics or as isolated cases, and is caused by a specific microbe, which apparently is easily transmitted. The disease is characterized by an acute inflammation of the meninges of the brain and spinal cord, which produce very definite and marked nervous symptoms. The child complains of very severe headache at the beginning, with pains in the back and limbs. Soon a condition of stiffness in the legs is to be noticed, which may later on become

pronounced as the disease advances, producing finally the condition of arched back (opisthotonus). There is high fever, and there may be a slight rash. The diagnosis is difficult, and the disease is fortunately rare.

Erysipelas is a specific contagious disease which produces a characteristic rose-red rash, and is caused by a micro-organism known as the *Streptococcus erysipelatis*. It is usually preceded by an injury or abrasion, through which the microbe gains admittance to the tissues; but it may appear without any sign of external injury, particularly on the face. The child suffers from constitutional disturbance of varying severity, and a localized rash forms round the seat of injury, or, in the so-called "idiopathic cases," on the face. This rash, which is merely a deep blush, is accompanied by marked swelling and œdema. The area of red surface is hot to the touch, showing the presence of acute local inflammation. The temperature is raised, and the constitutional symptoms rapidly increase as the inflammation progresses. The erysipelas may remain stationary, or may spread to neighbouring parts. When the finger is passed over the part affected, it will be felt that there is a distinct elevation which fades abruptly into the sound area alongside, so that the examining finger feels, as it were, a raised ring of tissue surrounding the red area. Later on bullæ may form, and when the inflammation subsides, the skin over the area usually peels off in flakes. The disease is very contagious, and should be promptly attended to, since the complications that may ensue are very serious, especially when the face has been attacked.

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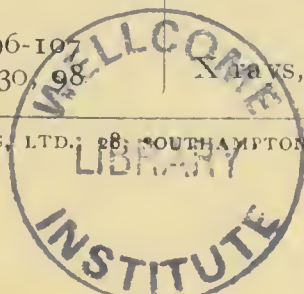
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